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Railway Age

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EDITORIAL

Railway Age

Advances to Railroads versus Slow Pay

From time to time the Railroad Administration has made announcement of the "advances" which it has made to the railroad companies. Many of these so-called advances are simply due or overdue rental. The Administration has the excuse that the contracts between the railroad companies and the government have not, except in a comparatively few instances, been signed. But the government has used the railroads for over a year. They are the property of private corporations and justice demands that compensation be paid the owners currently for the use of their property. If the government were promptly to pay a rental of 90 per cent of the minimum amount that would be due under its own interpretation of the prospective contract wih each road in accordance with the provisions of the railroad control act, it would be beyond peradventure on the safe side and the corporations would be in possession of a reasonable part of the money which is due them. The corporations could then in turn meet their obligations. As it is now the Wabash is holding up the payment of the dividend on its prior preferred "A" stock, and the Chicago, Milwaukee & St. Paul is deferring the dividend on both its preferred and common. If the so-called "advances" which the Administration talks about were fully analyzed, it would be found that in a great number of cases the Administration is far behind in its payments to the roads. This situation is analogous to that previously mentioned in these columns which is created by the fact that federal managers are not allowed sufficient sums to pay debts due for railroad supplies. It is all thoroughly bad business and works injustice to the supply companies that are creditors of the government and to the holders of securities of the companies.

Rate Discrimination and the Administration

In the Pacific Lumber case, reported elsewhere in this issue, the director general, through his counsel, at first contended that the Interstate Commerce Commission did not have jurisdiction under the federal control act to pass upon alleged discrimination in rates. By successive steps counsel for the Railroad Administration, however, retired from this position and the Interstate Commerce Commission in its decision squarely rules against this earlier contention of the Railroad Administration. The commission apparently holds that whether the advance in rates alone may be considered as the rate initiated by the director general, or the entire rate including the rate advanced as well as the advance on this rate should be considered as the rate initiated by the director general, the commission still has the power to declare a rate unjust and unreasonable. It is a rather interesting point that the commission brings up as to whether the whole rate or the advance only is the rate initiated by the Railroad Administration. In this particular case the commission did not attempt to decide the question, but it might conceivably enter into other cases which the commission will be called upon to decide during the period of federal control. It is rather amusing to see the evident joy which the commission takes in brushing aside the contention of counsel for the Railroad Administration that war conditions might justify rates which would otherwise be unreasonable. This plea was quite possibly entered before the signing of the armistice, but the decision of the commission was arrived at since that time, and there is quite evident a note of relief on the commission's part that such an argument is no longer valid. Notwithstanding this attitude, however, the commission in the Pacific Lumber case stands squarely on its right to reduce rates on roads under federal control when such rates are unjust because discriminatory.

Driving Brains Out of the Railroad Business

The end of the war and of the responsibilities carried with it have enabled railroad officers, heretofore bound to their duties by patriotic considerations, to think of their own interests. The recent resignation of A. W. Thompson, federal manager of the Baltimore & Ohio, Eastern Lines, illustrates which way the wind is blowing. Mr. Thompson, who is not yet 44 years of age, has been regarded as one of the ablest and most promising of the younger generation of railroad executives. Despite the fact that the railways constitute one of the most important instrumentalities of our economic fabric, and as such should be able to retain their best talent, Mr. Thompson evidently deemed his future in the steam transportation field too uncertain to warrant his remaining in it when a good opportunity in another business presented itself. As president of the Philadelphia Company, a corporation operating several public utilities and industrial properties in the Pittsburgh district, he will no longer have to fear the uncertainties presented by the present situation of the railways or the restrictions upon initiative and ambition imposed by government operation. Mr. Thompson is not alone in leaving the railways for industries which offer more stable conditions and the certainty of compensation more commensurate with ability and energy. For example, C. B. Seger, president of the Union Pacific system, has recently resigned to go to the United States Rubber Company, and D. W. Cooke, vice-president of the Erie, has gone with the Cunard Steamship Company. Other men it is important to keep on the railways are likely to follow their example unless the policy of experimentation with government operation, inaugurated during the war, is abandoned and the railroads are returned to their owners on a basis which will permit their successful operation. Although the Railroad Administration shows a large deficit for the first year of its activities, much has been said of the improvements that have been introduced through unification. On the other hand, too little has been said of the advantages the Railroad Administration has derived from the loyal service of railway officers who have been developed and trained under private management. While the railways can well afford to dispense with some duplications of facilities and service, they can lose their skilled and experienced officers only at a tremendous cost. It is obvious to any one familiar with existing conditions that the railway problem of this country must be settled, and settled soon, if the exodus of brains from the industry is not to assume dangerous proportions.

The Foreign Trade Convention

As briefly mentioned in last week's issue, announcement has been made that the Sixth National Foreign Trade Convention will be held at the Congress Hotel, Chicago, April 24, 25 and 26. The railway supply field has always been well represented at the Foreign Trade Conventions and it is not unreasonable to suppose that with the new interest in foreign trade that is being manifested by the industry and in view of the holding of the meeting in one of the big centers of the supply field—namely Chicago—there will be even a much greater attendance of supply men this year than usual. With these facts in mind, the *Railway Age* feels sure that it would not be out of order to suggest that the American business man's interest in the railways of other lands has now become great enough to permit of the holding of a special group session of the convention, devoted entirely to the export of railway supplies. Such a group session could cover a number of important and timely topics; including, for example, the present trend of railway development in foreign lands; the desirability of the investment of American capital in the railroads of South America, China, etc.; the prospects for trade in railway supplies in various countries the world over; and, by all means, a discussion of the practical difficulties to be surmounted and consideration of the best steps to follow to build up a lasting trade in railway supplies —including not only cars, locomotives, rails, etc., but also specialties and accessories. In view of the large number of railway supply men in Chicago and the interest in this subject manifested by the railway supply men in New York and other cities, a good attendance at such a group session would apparently be guaranteed. The question itself is so broad that it would seem to fit in with the broad ideas that characterize the conventions. The speakers should be readily obtainable and that such a group session would prove of lasting value seems beyond doubt. The secretary of the National Foreign Trade Council, O. K. Davis, 1 India Square, New York, has asked for suggestions. We feel sure that if a sufficient interest in the plan were shown by the many railway supply men who are in the habit of attending the Foreign Trade Conventions, it could easily be brought about.

Save Fuel by Supervising Coaling Stations

THE POSSIBILITIES for saving fuel through careful supervision of coaling stations have in the past received but little consideration. The importance of this matter was strikingly brought out at a recent meeting of the Western Railway Club by J. G. Crawford, who presented data to show that if the plants were improperly operated as much as six per cent of the fuel might be wasted. To secure the best grade of fuel for locomotive service, as delivered on the tender, the coal loaded at the mine must be checked to insure that the lump and screenings are well mixed, the metal bottoms of the coal pockets must be kept bright and each pocket must be completely emptied every few days. If these precautions are observed each engine will receive a fairly uniform grade of well cracked mine run coal. On the other hand, if the chute pockets are not cleaned thoroughly and systematically, the metal bottoms will become rusty, and coal will accumulate with the result that some engines will receive egg coal, others cracked mine run and still others screenings.

The fuel performance under the latter conditions will not be as good as if the engine had received a uniform grade of mine run coal. Tests conducted at the University of Illinois show that two-inch lump coal is 98 per cent as efficient as mine run and that two-inch screenings are 90 per cent as efficient as mine run. It would make no difference whether the two-inch lump and two-inch screenings were obtained by screening mine run at the mine or whether they resulted through separation of mine run at the coaling station. Therefore under the first assumed condition the efficiency of the coaling station would be 100 per cent and under the second condition, assuming that the engines received one-half the time two-inch lump and the other half two-inch screenings, the efficiency would be only 94 per cent, or the average of 98 and 90 per cent.

The amount to be saved by closer supervision of coaling stations will not average six per cent, but nevertheless, on most roads, it will be found to be a very appreciable item. There are other conditions that make it advisable to give close attention to the coaling plants. There will be more delays to trains and more engine failures if some locomotives receive all lump coal and others all screenings, than if each engine receives a uniform grade. Furthermore, the gradual oxidation of accumulations of fine coal which have remained in the chutes undisturbed for some time may cause fires due to spontaneous combustion.

Government Operation Kills Private Initiative

IN HIS PROCLAMATION of December 26, in which he announced his decision to take over the railroads, President Wilson stated that "investors in railway securities may rest assured that their rights and interests will be as scrupulously looked after by the government as they could be by directors of the several railway systems." When he appeared before Congress on January 4 he stated further that "nothing will be altered or disturbed which it is not necessary to disturb. We are serving the public interest and safeguarding the public safety, but we are also regardful of the interest of those by whom these great properties are owned."

The public and the owners of the railways took these statements at their face value. The President stated that he took the roads over solely as a war measure but many measures have been introduced which have borne no relation to the winning of the war and which have been promoted solely to demonstrate certain theories of railway operation held by those in control. Although the war has now been won and the purpose for which the roads have been taken over has been accomplished, new measures continue to be introduced, many of which are in evident conflict with the pledge of the President to protect the interests of the owners of the individual property. As an illustration, one road has made extensive investments in a timber treating plant to insure a supply of treated ties for its lines. Following the inauguration of government control, a large part of the output of this plant has been diverted to other lines, while the owning road has been forced to return largely to the use of untreated ties. Another road found the tie supply failing along its lines several years ago and after extended search developed a new source of supply remote from its then-existing lines. To protect itself it made a long-term contract with a large producer working in this region, built a treating plant located with reference to this source of supply and perfected an elaborate program. This road has recently been notified of the cancellation of its contract by the Central Purchasing Committee and has been advised that the ties produced in this region will be diverted to other roads. No attempt is made to deny the fact that the original road needs the ties, but the statement is made that other lines need them worse. When it is considered that the tremendous decrease

in tie production during the past year has been brought about largely by the ill-advised actions of the Central Purchasing Committee in its attempt to "reform" the tie producing industry and not entirely by the conditions inherent in the national situation, it is difficult to see how such steps are "regardful of the interest of those by whom these great properties are owned."

One of the features which has characterized the successful roads under private operation has been the courage and far-sightedness displayed in making large investments leading to ultimate economies. Having taken the risks incident to these investments, these roads are now denied the advantages accruing from them and are required to share these advantages with other roads which have incurred none of these risks. The only possible result of the continuance of such a policy will be to force the progressive roads to forego such productive improvements and to lower them to the level of the average. The suppression of initiative has been found to be a universal result of government ownership of public utilities elsewhere, and it is rapidly becoming evident in this country.

The Employment of the Expert

THE HIGHER THE RATE of compensation for any given class of employees, the greater the incentive to curtail their employment. Thus with laborers paid double what they formerly received there is a greater demand for labor saving devices. Likewise the award of appreciable advances to supervisory and technical forces on the railroads naturally leads to speculation on the opportunities for curtailing the employment of these higher grade men. To be sure, there will be no tendency toward a return to the old days of railroading when the only supervision considered really necessary was that given by the "old man" himself who also assumed that he had a more intimate knowledge of the technical details of all branches of railway operation than any one else in the organization. There is little question that supervision on the roads should be increased rather than curtailed, and it is common knowledge that the employment of technical assistance on railroads is not nearly as extensive as in most industrial undertakings.

In the case of technical help, however, there is one legitimate means of reducing the size of the staff, namely the employment of the outside consulting expert at such times and for such periods as his services may be required for some special project. This suggestion may be applied to any one of a half a dozen or more different types of special railway employment. Of all classes of special experts employed by the railways the architect is probably the commonest and most frequently considered.

Few large passenger stations are developed without the aid of outside architects. On the other hand, even the smallest roads are organized to design the small roadway and station structures. Briefly, success in the large projects implies a happy combination of skill and imagination in architectural design with an intimate knowledge of the physical operating requirements of the railroad structure. Unless the architect in private practice specializes in railroad work or carries on a sufficient amount of it to become thoroughly conversant with railroad requirements, his designs will require too extensive revision by the railway officers to be entirely successful from either the utilitarian or the aesthetic standpoints. On the other hand, the small railroad can scarcely afford to employ an architect on its staff who has sufficient breadth of vision to handle the larger work. Even if the road should be able to pay an adequate salary to attract the man of ability, the paucity of the larger problems would have a tendency either to drive him to other employment or to cramp his ability to cope with the occasional large project. Such a man would suffer a handicap also through the application of the old adage "familiarity breeds contempt." Being occupied most of the time with minor matters, his superiors will not accord him the necessary independence of action in preparing his designs and will be too inclined to drive rough shod through his plans, ordering changes here and there which may ruin the motif of his architectural treatment entirely.

However, while it is clear that most railroads will find it more profitable to retain the architect in private practice for the more important projects, it is necessary that the nucleus of the building design staff be maintained to conduct the current building work. It would be impracticable to carry on work of this nature with the aid of a firm of outside architects. Familiarity with general policy and intimate knowledge of the property and its needs are matters which enter largely in the preparation of designs for new structures or for remodeling old ones as well as in the successful superintendence of work while in progress. Furthermore, the architect must be in close contact with the maintenance forces in order that he may study the practical working out of the various building standards and be in a position to revise them intelligently with a knowledge of their actual performance.

The problem, therefore, seems to resolve itself into the retention of a staff to conduct the current work, while calling in outside assistance whenever the unusual or monumental structure is to be considered. The conditions on some roads may justify the arrangement for doing a larger part of the work by outside individuals than on others. Whatever the solution of the problem, one principle is established—there is no economy in eliminating the expert when his services are really required. Be he architect, hydraulic engineer or coal dock expert, if he is not employed on salary he must be retained on a fee.

Will Another Advance in Rates Be Necessary?

MR. MCADOO is no longer director general of railways. The effect of the things he said and did while he was director general will, however, long be felt by those who have succeeded to the responsibilities he has left and by the public. It is necessary that one of the last important things he said shall at this time be subjected to sharp scrutiny. Otherwise, the public may be seriously misled and other persons may be held responsible for the results of some very far-reaching things he did.

Testifying before the Senate Committee on Interstate Commerce, Mr. McAdoo expressed the opinion that if government operation were continued the railways, with the present freight and passenger rates, could earn a surplus over the return guaranteed to the companies of $100,000,000 in 1919. He even indicated it should be possible to effect economies during the present year which would render it feasible and desirable to make some reduction in freight rates.

Early this week, however, it was implied in newspaper despatches from Washington that further advances of rates probably will be necessary if the government is to avoid incurring a railway deficit in 1919 even larger than that of 1918. Study of the statistics of railway earnings and expenses for the four months, August to November, inclusive, and consideration of some important new influences which are working, will demonstrate that the fear that either rates must be again advanced, or the taxpayers of the United States must pay a large railway deficit for the year 1919, is only too well founded.

The increase in total railway earnings in the four months August to November, inclusive, as compared with the same months of 1917, was $457,000,000. This was almost wholly due to advances in rates. The increase in operating expenses in the same months was $465,000,000. In consequence, in spite of the advances in rates, net earnings in these months were almost $8,000,000 less than in the corresponding months of 1917. The way in which earnings and operating income declined during this period was very ominous. In August net earnings were $144,000,000; in September, $117,500,000; in October, $106,000,000; and in November only $76,000,000. Operating income is what is left of net earnings after the deduction of taxes and uncollectible revenues. In August operating income was $128,000,000; in September, $101,400,000; in October, $89,500,000; and in November only $57,000,000. It requires over $80,000,000 a month to pay the returns guaranteed to the companies; in November, the last month for which statistics are available, operating income was $23,000,000 less than this amount.

Since the armistice was signed and the war activities of the government have been in process of reduction, a rapid decline of both freight and passenger traffic, and therefore of gross earnings, has been occurring. In consequence, the figures for December may make a worse showing than those for November. It is true that large retroactive advances in wages were charged into the accounts in the months mentioned. But it must also be remembered that in October, November and December there was very little snow and cold weather, which was extremely favorable to economical operation. Furthermore, all the advances in wages granted in 1918 are not reflected in the statistics yet, and large advances in wages are still to be made to the train service employees, which will affect both the expenses and net earnings in 1919.

The facts are, then, that when Mr. McAdoo retired the expenses of the railways already had increased so much more in proportion than their earnings that they were not making enough to pay the guarantees to the companies; that traffic, and, in consequence, gross earnings were rapidly declining; and that owing to things he had done, and which cannot now be undone, the ratio of expenses to earnings was still sharply rising. Theoretically, it should be possible to effect large economies either by reductions of wages or by increases of operating efficiency. Nobody believes, however, that wages will be reduced. They are still being increased. It ought to be practicable to effect economies by increasing the efficiency of labor, which, in many branches of the service, has declined almost beyond computation, and is now at a low ebb. This is especially the case in the mechanical department, the inefficiency in which is reflected in a startling manner in the enormous increases in expenditures for maintenance of equipment. It seems very doubtful, however, whether the efficiency of labor will or can be substantially increased under government operation.

It would appear, therefore, that the only practicable alternatives, if government operation is to be continued, are to advance rates or to impose a railway deficit of $250,000,000 or more on the taxpaying public this year. Undoubtedly economies in operation would be effected if the railways were returned to operation by the companies, but nobody knows how soon these economies could be made or how large they would be, and therefore to return the railways to private operation without giving some kind of government guarantees of net income, temporary or permanent, or first making a substantial advance of rates, would be ruinous to many companies and would subject the country to the perils of a great panic.

Mr. McAdoo has left to those who are now operating the railways, to the railway companies and to the public a heritage of problems and dangers of the most serious kind.

Letters to the Editor

Locomotive Fuel Consumption

WASHINGTON, D. C.

TO THE EDITOR:

May I call your attention to a typographical error in the article from my pen which you published in your Annual Review number of January 3, 1919, page 29, by means of which I was made to say that railway locomotives during 1918 consumed some 650,000,000 tons of coal. By some process known only to your compositor my statement that consumption of fuel had been 165,000,000 was metamorphosed into 650,000,000 tons. JULIUS H. PARMELEE.

To Prevent Rear Collisions

CHICAGO.

TO THE EDITOR:

The two rear collisions to passenger trains that resulted in numerous fatalities which occurred recently prompts me to suggest a simple safeguard which would tend to render such accidents avoidable. All operating officers know how difficult it is to have the flagging rules strictly observed and that rear collisions in many instances are primarily due to a violation of these important rules.

If a rear platform lamp, equipped with a 100 to 150-watt electric light, and having a radial lens of 60 deg. to 90 deg. radius were provided for the rear end of every passenger train, protection would be afforded which is now lacking.

The "tail lights" used on most roads are inferior and not of sufficient size to be seen for any distance. On curves the rear lights are scarcely visible for a distance of more than a few hundred feet. The red light suggested would be visible on tangents for miles, and on curves a distance sufficient to enable a following train to be stopped before a serious accident resulted. My own experience has demonstrated the utility of such a simple protection and with only reasonable flagging protection such a device would make the disastrous rear collisions rare.

L. C. FRITCH.

Shipper Wants Better Treatment

CHICAGO.

TO THE EDITOR:

Now that the railroads have had their rates raised substantially, demurrage and switching rates have been raised, freight accounts placed on a strictly C. O. D. basis and many other conditions have been enforced that are favorable to the carriers, it is unfortunate that railways cannot, or will not, pay their own bills promptly.

Generally speaking, lines that formerly discounted, are taking extensive overtime on material accounts now, while lines that were slow under former management are now dreadfully delinquent. Little attempt on most lines is made to comply with terms of sale, though patrons are absolutely required to respect the new arrangement as respecting the payment of freight accounts. Then, too, little or no improvement has been noticed in the handling of freight claims; there is still the same old fencing, delays, needless correspondence, and none of the roads that we have encountered will pay interest on delayed claims as the director general recently ordered, unless forced to do so by the claimant, in accordance with Mr. McAdoo's order.

The public has stood very patiently for many changes, new procedure, etc., in the transportation field, but now feels that the time has arrived to show the public more consideration, as it is the good old public that, in the end, pays the bills.

A SHIPPER.

Wage Awards and Signal Department

ALTOONA, PA.

TO THE EDITOR:

Among the many irregularities brought about by the United States Railroad Administration's wage adjustment, perhaps none has wrought more injustice than that affecting the signal foremen. Signal department employees from the maintainers to the signal engineer have always been an underpaid class, considering the responsibilities resting upon them; but never before was there a time when the subordinate forces were rated higher than their immediate superiors. This, however, is one of the many inequalities that is being allowed to exist at the present time.

The gross injustice to the signal foremen, of the application of General Order No. 27 with its subsequent supplements, was evident soon after they became effective. In attempting to have the matter corrected, supervisors of signals, division engineers, superintendents, general superintendents, general managers, regional directors, wage boards and even the director-general were appealed to, but so far without any apparent result. At the present time signal foremen on one of the large roads in the Allegheny region are classed under Supplement No. 8 to General Order No. 27 and are paid a monthly salary (provided they work every day) of $140.45. A signal maintainer, rated at 68 cents an hour, under Supplement 4 will receive $182.24 for the month of January, 1919. A section maintainer also paid under Supplement No. 4 working in a minor supervisory capacity, with a five-cent differential over the maintainer though subordinate to the signal foreman, would receive $13.20 more than the maintainer, or a total of $195.44; making a monthly difference between the monthly earnings of the foreman and the section maintainer of $54.99, *in favor of the section maintainer*. This shows the absurdity of the rates when applied to the three positions mentioned and when each person filling the position is employed the net specified number of working days in the month.

When called to work on Sundays and holidays, or for the ninth and tenth hours of the regular working day, the inconsistencies to which the signal foreman and his assistant are subjected is demonstrated by the following:

Signal foreman receives	$0.688 per hour
Assistant foreman receives	0.641 per hour
Section maintainer receives	1.095 per hour
Maintainer receives	1.02 per hour

No person familiar with signal department work would say that the established rates of the maintainers or the section maintainers are excessive in the least, and any attempt to reduce such rates would be nothing short of a miserable travesty on justice, but how long will the Railroad Administration be able to hold signal department organizations together under such conditions? Many experienced men have already left their positions to take up other work. Others have forfeited their foremanships and taken places in the ranks, while others, conscious of their patriotic duty and willing to stand by the government in a crisis, have labored on in the hope that some of the many promises would eventually be fulfilled.

There has been much speculation as to what an adequate increase for the signal foremen should be, but, treating the matter from the standpoint of justice, there should be no difficulty in arriving at a satisfactory conclusion. The recent increase granted the foremen in the locomotive and car departments was based on what their highest paid craftsmen would receive when working a full month, and was made sufficient to take care of any emergencies that may arise. If a foreman in the locomotive and car department, supervising men rated at 68 cents an hour is paid a flat monthly rate amounting to so much more than his craftsmen, why should not the signal foreman who is supervising crafts rated the same as those in shop work, receive an increase equivalent to that of the shop foreman with a fair percentage allowance made for the number of men over whom he has supervision?

A signal foreman stands to lose approximately $1,000 simply because he happens to have sufficient ability to have been advanced above his fellows. If such injustice is to continue, the only thing remaining for the signal foremen is to petition the Railroad Administration for a place in the ranks and if this were permitted, it would be very difficult to fill the foremen's positions, because years of experience are necessary to develop a signal foreman; and as already stated, the existing rate would not justify the subordinate forces in making the change.

CHAS. L. SANDRUS.

Speaking of Resignations

ST. LOUIS, MO.

TO THE EDITOR:

Your editorial entitled "Speaking of Resignations," in the issue of November 29, reminds me that the ancient Greeks and Romans, when they got the characters in a play in such a fix that they could not be extricated by mortal hands, had a "Deus ex Machina" or a sort of God, let down on the stage in a cage, who straightened them out. If you can find a "Deus ex Machina" for the railroads he could be more useful than the I. C. C. and forty-eight other disturbers.

C. D. PURDON,
Consulting Engineer, St. Louis Southwestern.

[Representative Sims has introduced a bill to provide $500,000,000 additional for the Revolving Fund. Maybe it's the "angel" that's needed for the show.]

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Apparently the German Censor Had Not Yet Let Them Know that They Were Licked

New Lift Span Partially Completed with Temporary Lift Span Still in Place

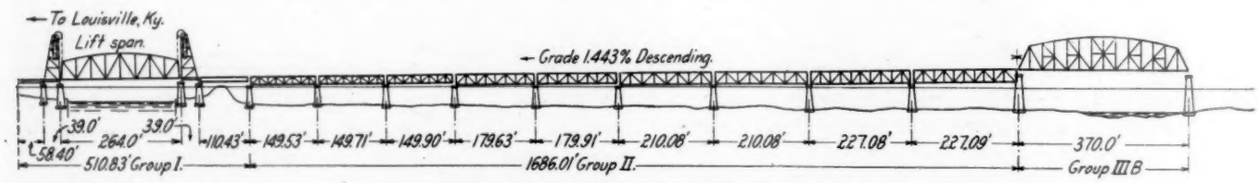
The Reconstruction of a Notable Railroad Bridge

Ohio River Crossing at Louisville Now Contains Longest Simple Riveted Span in the World

THE RECONSTRUCTION of the Ohio river bridge of the Pennsylvania Lines at Louisville was the foremost railway bridge project under way during the past year. It was the greatest by reason of the length of the structure, which is almost a mile, because of its weight, which aggregates 23,500 tons of structural steel, and because it contains a record-breaking span of 643 ft. 10½ in., the longest simple, riveted truss span in the world. Considerable historic interest also is attached to this project because it marks the passing of a noted structure among American railway bridges, the Louisville bridge built by Albert Fink between 1867 and 1870. Through 47 years this old superstructure carried the increasing loads of railway traffic with but minor strengthening and when removed was in a remarkable state of preservation. But like most other railroad bridges built before the beginning of the new century, it proved inadequate for present loadings and had to be replaced by a new structure of greater carrying capacity and also providing double track. The new bridge, like the old one, is being built by the Louisville Bridge Company, a corporation controlled by the Pennsylvania Company through ownership of 98 per cent of the stock.

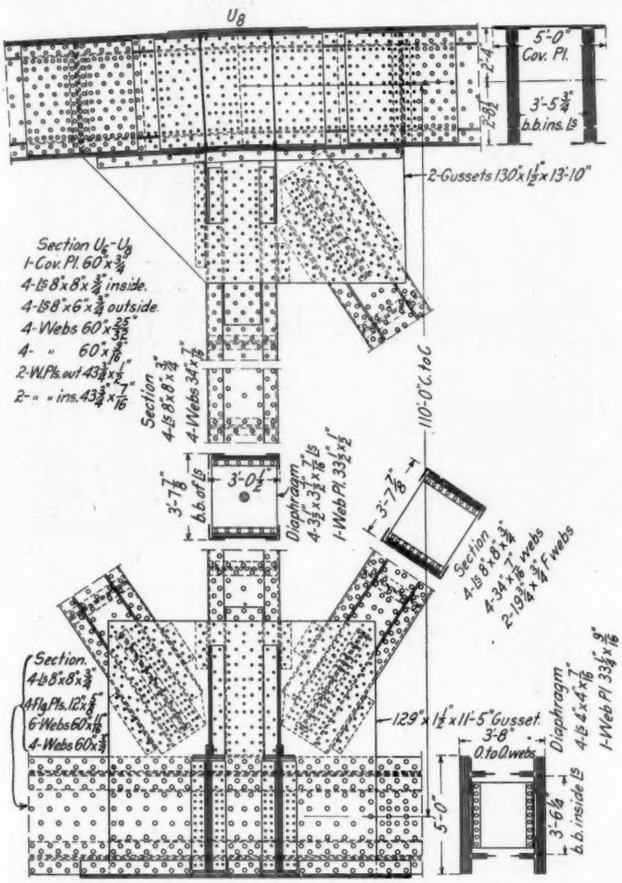
The old bridge, as built in 1870, consisted of two through channel spans of 400 and 370 ft., respectively, and a deck swing span of 264 ft. over the Portland canal, with 23 deck spans varying from 50 ft. to 245 ft. 5 in. in length. The two through spans were of the sub-panel Warren type with cast-iron compression members and wrought-iron, eye-bar tension members. The trusses were duplex, there being two complete trusses on each side connected by struts and ties. The deck spans were all of the Fink type with material of the same character as that used in the through spans.

Subsequent to first construction certain changes were made. In 1891, the floor beams of the deck spans, which were of a unique cast-iron arch type, were reinforced by placing steel beams on either side of them. About 22 years ago the truss floor beams of the through spans were equipped with equalizers to effect a more uniform distribution of the load to each of the doubled trusses. In 1902, the drawspan was replaced by a through Pratt truss draw. The wooden stringers were also replaced by steel after 25 to 35 years of service. In 1900 instructions were issued limiting the weight of trains crossing the bridge to 3,300 lb. per lin. ft., with engine axle loads of not over 39,000 lb. The speed was also restricted to from 8 to 20 miles per hour, depending on the makeup of the train. The old substructure, of Bedford stone ashlar masonry on rock foundation, was so well preserved that it has been used to support the new steel with only such



South Half of the Louisville Bridge

modifications as were necessary to make it fit the new superstructure. The wrecking of the old structure disclosed the high grade of workmanship which had been applied in its



Typical Truss Details of the Indiana Channel Span

fabrication and erection, as demonstrated by the excellent behavior of the spans through their long service life.

The New Structure

The old superstructure has been replaced largely by spans of equivalent length on the old piers, except for several important modifications. The old 400-ft. Indiana channel span and the deck span adjacent to it on the south have been replaced by a single span 643 ft. 10½ in. long center to center of end bearings. Two of the deck truss spans at the north end of the bridge have been replaced by two deck girder spans of 32 ft. and 99 ft. 6 in. respectively. The old center pier drawspan has been replaced by a span of 264 ft., center to center of piers, operated as a vertical lift, while the necessity for flanking this by 39-ft. tower spans introduced a modification in the makeup of the spans immediately adjacent to the draw.

Except for the presence of the lift span, the new superstructure of the Louisville bridge bears a striking resemblance to that of the Ohio Connecting Railroad bridge of the Pennsylvania Lines across Brunot's island near Pittsburgh, which was rebuilt in 1914-15. Both of these bridges contain two through riveted channel spans of the Petit type, separated by a long series of riveted deck Warren type truss spans, and there is a marked similarity in the structural details. There is also an interesting coincidence in the fact that, until the completion of the record span of 644 ft. in the Louisville bridge, the 525-ft. span of the Brunot's island bridge was the longest riveted simple truss span in the United States. The similarity, however, ends there, since the manner of prosecuting the work in the two structures differed widely.

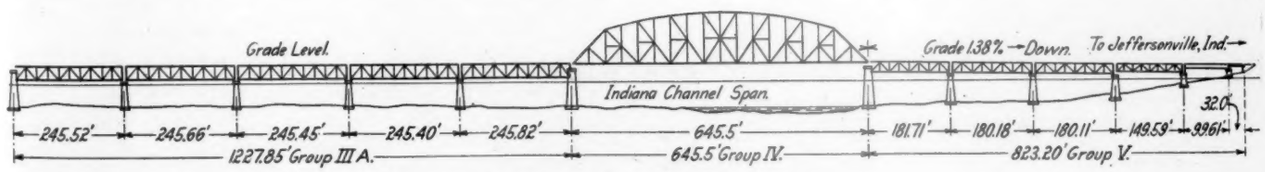
The Indiana Channel Span

As a record structure, a few of the principal dimensions of the 644-ft. span are of interest. It consists of 18 sub-panels of 35 ft. 9¼ in. The height of the trusses is 74 ft. at the portals and 110 ft. 6 in. at mid-span, measured center to center of chords. The trusses are 34 ft., center to center, and the total weight of the span is 6,209 tons.

The top chords and end posts are of a double-I section with top cover plates and having 60-in. webs and 60-in. cover plates. The gross sectional areas of the end posts and maximum top chord members are 562.43 sq. in. and 535.09 sq. in. respectively. The bottom chords are of a double-web type with maximum net and gross sections of 487.55 and 587.27 sq. in. respectively. The largest gusset plate, which is at panel point L-4, measures 129 in. by 1½ in. by 13 ft. 10 in. The two webs of the bottom chord are tied together by diaphragms spaced 10 ft. to 12 ft. apart with single lacing of 6-in. by ½-in. bars attached to horizontal plates secured to the webs by means of 8-in. by 8-in. angles. The top chords and end posts are stiffened by diaphragms at intervals of 6 ft. to 9 ft. and the lower edges of the two webs are tied together by lacing bars and tie plates, except that the lacing bars are omitted in the top chords by providing that the spaces between the ends of the tie plates are not greater than three feet.

The floor system, following the design used on the Ohio Connecting Railroad bridge, consists of duplicate floor beams at each panel point, one each to support the stringers in the panel on either side. This makes the floor system at each panel a complete, independent unit, an arrangement that is especially convenient in erection. The end bearing detail of the span is of massive proportions; the bearing pin is 24 in. in diameter and the expansion bearing consists of eight segmental rollers having a diameter of 2 ft. 6 in. and a length of 4 ft. The span rests on a grillage 2 ft. 2 in. deep and 11 ft. long transverse of the piers, which in turn is supported on a grillage covering the entire length of the pier and consisting of eight girders 3 ft. 9 in. deep. The material is high tension steel for main members of the trusses and floor system and medium steel for the gusset plates, bracing and minor details. The rivets are ⅞ in., 1 in. and 1⅛ in. in diameter.

The details of the 370-ft. Kentucky channel span correspond very closely to those of the large span. One difference is noted in the fact that the end post occupies only one sub-panel and therefore has a much steeper slope. Some idea of the relative proportions of the new double-track bridge



North Half of the Louisville Bridge

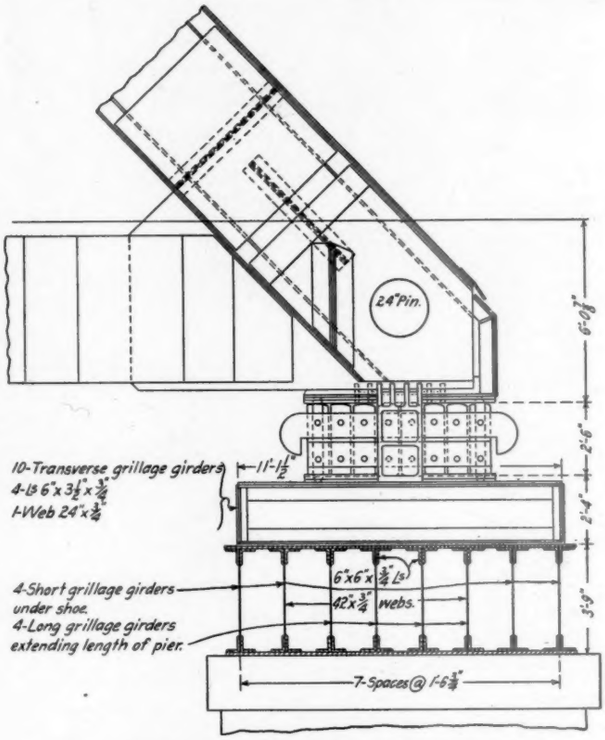
as compared to the single-track structure which it replaces is to be obtained by a comparison of the weights per foot of track of the new and old superstructure for this span, these being 12,272 lb. and 3,050 lb. respectively. The new 644-ft. span weighs 19,650 lb. per ft.

The Lift Span

The lift span is composed of through riveted trusses 260 ft. long, center to center of end bearings, and weighs about 1,320 tons. Towers flanking it on either end afford means for lifting the span a distance of 32.3 ft. to give a clear headroom of 79 ft. above the pool level of the canal. The operating details of this structure conform very closely to those used in the Pennsylvania Lines bridges over the Chicago and Calumet rivers at Chicago. The counterweight towers are 105 ft. high from the top of masonry to the center line of the 15-ft. sheaves from which the span and the counterweights are hung by sixteen 2⅛-in. wire ropes at each corner. The sheaves consist of seven cast-steel rim segments with special steel web members connecting them to cast-steel hubs which are bored for 24-in. diameter shafts. The counterweights are of concrete cast in structural steel frames. Compensation for the weight of the carrying cables is accomplished by means of cast-iron link chains swung between the bottoms of the concrete counterweights and points at mid-height on the towers.

Power is supplied for moving this span up and down by cables attached near the bottoms and tops of the towers and passing over sheaves at the ends of the top chords to drums on hoisting equipment in a house over the center of the span. The hoisting equipment consists of two 150-h.p., 220-volt, 3-phase, 60-cycle induction motors. There are three forms of control, one automatic by means of two solenoid brakes, and two manual through an electric brake and a hand brake. Duplicate control of the structure is provided since it may be operated from a cabin suspended inside of the trusses below the machinery house, and also from an interlocking tower located just south of the bridge which controls not only the movement of the trains that cross the bridge but also the throat of a yard located just south of the canal. Excessive vibration in bringing the structure to bearing on the bridge seat is avoided through the provision for pneumatic buffers consisting essentially of cylindrical plungers passing into cylindrical tubes from which the delayed escape of the contained air through small orifices serves to bring the span to rest gradually.

The grade of the bridge between and including the two channel spans, a distance of 2,242 ft., is level, with approach grades of 1.38 and 1.443 per cent ascending from the north and south respectively. The 1.443 per cent grade extends across the lift span and was taken care of entirely in the attachment of the floor beams to the trusses, so that the bottom chords of the span could be level. There is a possibility that grade separation work in the city of Louisville to the north of this structure will require some future modification of the track grade at the south end of the bridges and as a means of facilitating a change of grade across the lift span, the rivet spacing of the connections of the floor



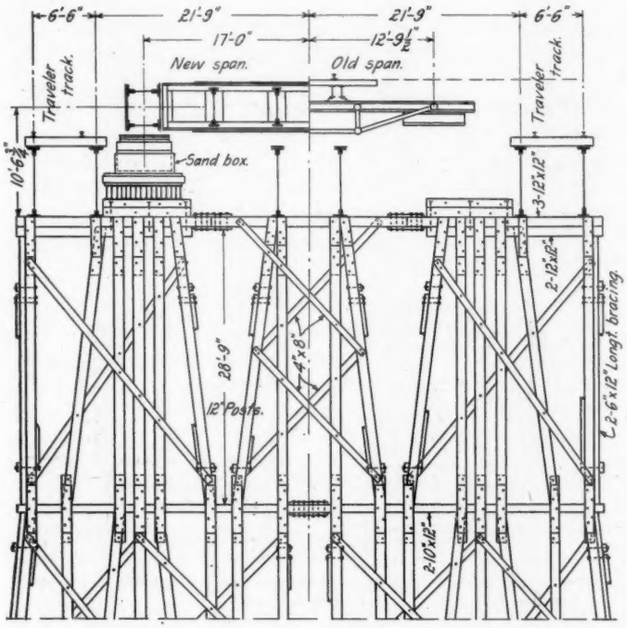
Outlines of the End Bearing for the 644-Foot Span

Falsework for the Erection of the Deck Truss Spans

beams to the posts has been made uniform so that the beams may be readily moved up variable distances on the posts.

Erection

The erection of the bridge proceeded slowly because of the masonry changes that had to be carried on simultaneously with the placing of the new steel. The first work to be done



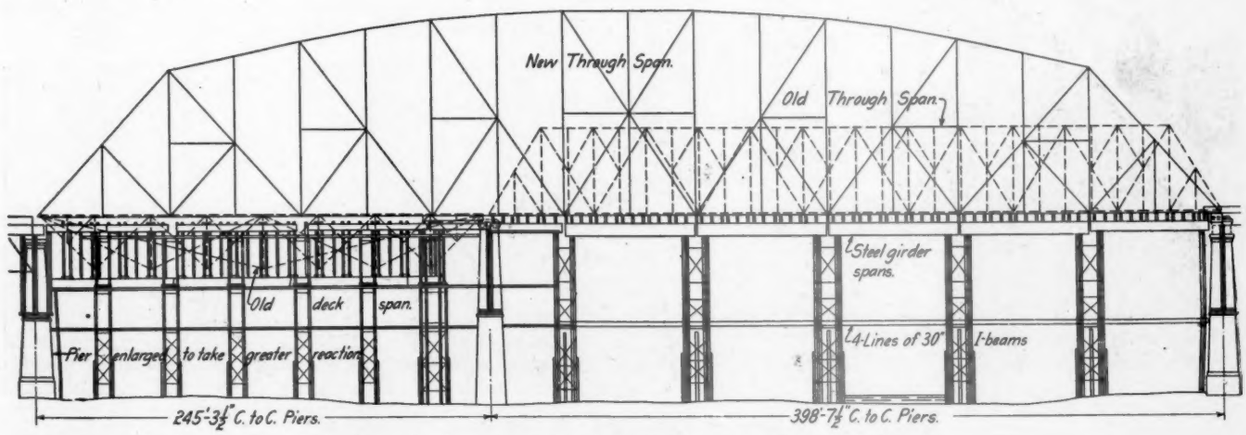
Elevation of the Upper Half of a Bent in the Falsework Used Under the 644-Foot Span

was on Group 5, the deck spans between the Indiana channel and the north abutment; this was started June 1, 1916, and finished October 1, of the same year. The next section was Group 3A, the five deck spans between the two channel spans requiring from September 1 to December 15, 1916.

The old masonry was found to be in excellent condition and, although built for single track, the piers were found to be of adequate length to carry the new double-track structure after being provided with longitudinal steel grillages concreted into new copings. In the case of the piers supporting the old Fink trusses, the bridge seat was located just under the top chords so that in order to erect the new deck trusses it was necessary to cut down these piers to afford space for bearing shoes below the level of the new bottom chords, and since the piers had an appreciable end batter, the new pier tops at the lower level were considerably longer than at the old level. However, this change in the masonry proved to be a considerable obstacle to the work since the rate at which the old superstructure could be replaced by the new was controlled very largely by the speed at which the alterations to the masonry could be made.

The falsework for the deck spans consisted of towers of frame posts resting on the rock bottom of the river and carrying plate girder spans below the level of the bottom chords of the new spans. On these, frame bents were erected to support the bridge floor and the old trusses at the level of the top chords. The old trusses were then taken down and the new ones erected, after which the floor system was replaced panel by panel. In the meantime the old piers were removed down to the new level and the grillages installed and concreted in place.

The erection of the Indiana channel span was by far the most formidable problem of the project, not only because of the great weight of 6,209 tons which had to be maintained on the falsework, but because of the very swift current that flows in the channel under this span. Some idea of the velocity of the water may be gained from the fact that there is a fall in the river of 23 ft. in one mile. Erection on falsework under these circumstances would have been an impossibility but for the fact that the depth of water is only from 8 to 10 ft., with a maximum of about 16 ft. The bottom is bare solid rock. The problem was complicated by the necessity for removing the intermediate pier carrying the south end of the old channel span and the need for strengthening the pier to carry the south end of the new span, since this pier now carries a far greater reaction than under the previous arrangement. This was accomplished by inclosing it with a three-foot thickness of new stone masonry on all sides. The pier is 100 ft. high from top of footing to base of rail and the reinforcement entailed the use of 1,392 cu. yd. of masonry in the neatwork and 64 cu. yd. in the coping.


New Through Span.
Old Through Span.
Steel girder spans.
Old deck span.
Pier enlarged to take greater reaction.
4-Lines of 30" I-beams
245'-3½" C. to C. Piers.
398'-7½" C. to C. Piers.

Elevation of the Falsework Under the 644-Foot Span

The 370-ft. through span was erected between April 25 and July 10, 1917. The remaining deck trusses were erected between May 10, 1917, and January 20, 1918. The erection of the superstructure of the group of spans centered about the lift span started on March 1, 1918, and was completed on September 10 of the same year, while the work on the great Indiana channel span was started on April 20, 1918, and is now practically complete.

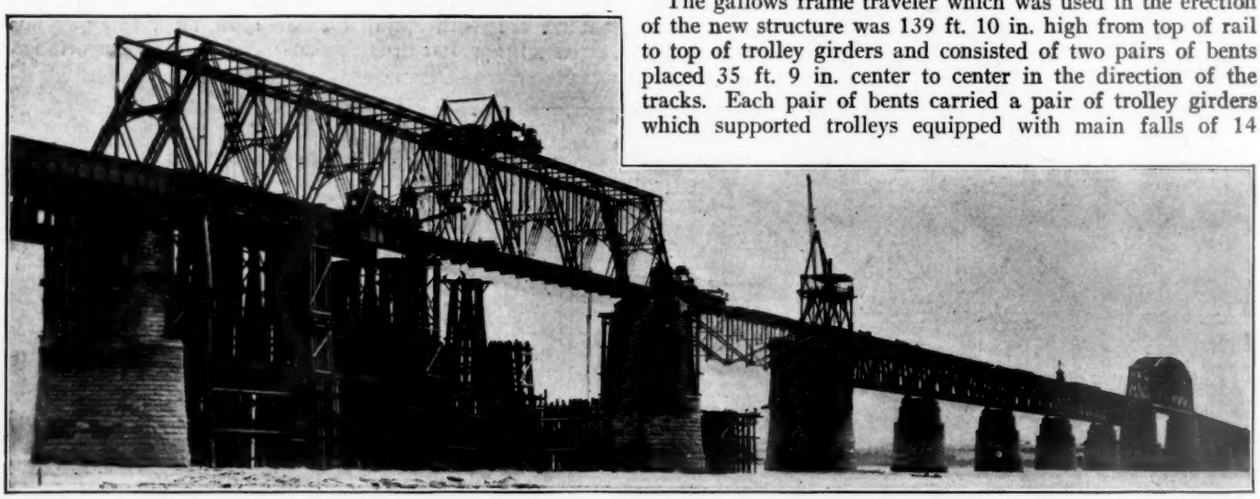
The reconstruction of this pier was accomplished by surrounding it with a rock crib to produce a pool of still water. A cofferdam was then built inside of this and worked down

through the loose rock to the bottom of the river, after which it was unwatered and the footing concreted.

Work on the new masonry was facilitated by building a gallows frame supported on the pier and spanning over the track with sufficient clearance to allow the passage of trains. This was equipped with two derrick booms which were used to handle the stones delivered on cars and set them into place in the pier. Material for concrete work was stored in a bin built on the bottom chord of the new deck span to the south, the material being chuted from cars spotted above. As the old deck span to the north was not placed on falsework during this operation it was necessary to support the end of this span over the pier by means of a 50-ft. girder placed crosswise under the end shoes of the old span and supported on frame bents at the two ends of the pier.

Falsework for the Indiana Channel Span

One of the drawings shows an elevation of the falsework used in erecting the 644-ft. span. It consists of a series of frame bent towers supporting deck plate girders. The portion of the falsework under the old span was complicated by the need of placing these girders low enough to clear the bottom of the old span so that the construction was similar to that used in erecting the deck spans. Under old channel span each falsework tower consisted of four bents containing 16 posts each. The most difficult part of the work was to place these posts in the swift current. To accomplish this a timber frame or box truss was designed to surround the entire lower story of the tower. It was built above water, suspending it from lines depending from a creeper traveler riding on the top chords of the old through truss span. This frame was held at a fixed distance out from the pier or the nearest tower previously erected by struts hinged at the ends so as not to interfere with an up-and-down motion of these box trusses. The trusses were fitted with four posts located at approximately the quarter points of each outside bent so that when the box trusses were lowered these four posts could be brought to bearing on the river bottom. With the frames

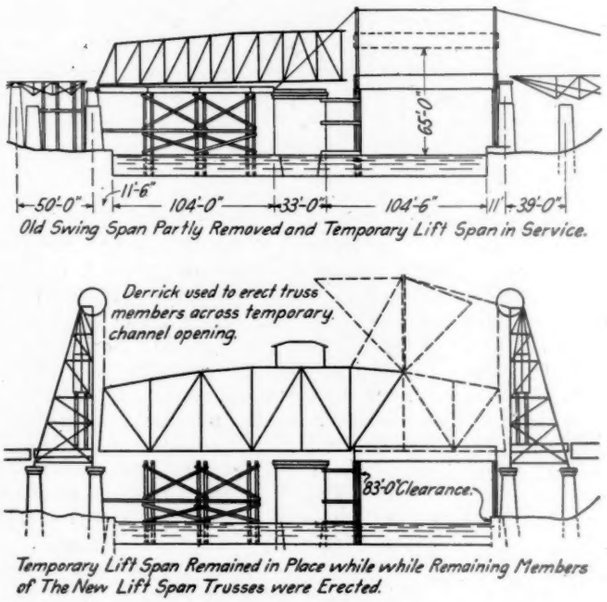


Erecting the Falsework Under the Old Indiana Channel Span

thus supported, the rest of the posts for the tower were let down into place in succession between guides in this frame. Each post was fitted with a cast iron pyramidal shoe and brought to a solid bearing on the rock by subjecting it to several blows with a steam hammer.

No sway bracing was provided between the towers, but four lines of 30-in. I-beams at a level of 31 ft. above the bottom were spanned from tower to tower and made continuous between the piers to serve as sash bracing. The two inside lines of these I-beams were cross-braced to form a horizontal truss.

An elevation of the top section of the tower bents shows how the posts were grouped to support the various parts of the superimposed live and dead loads. Two girders in the center carried the track used for revenue traffic and for the delivery of new steel. On either side of these, grillages were provided to carry the sand boxes under panel points of the


65'-0"
50'-0"
11'-6"
104'-0"
33'-0"
104'-6"
39'-0"
Old Swing Span Partly Removed and Temporary Lift Span in Service.
Derrick used to erect truss members across temporary channel opening.
83'-0" Clearance.
Temporary Lift Span Remained in Place while while Remaining Members of The New Lift Span Trusses were Erected.

Method of Removing the Old Draw Span and Erecting the New Lift Span

trusses, while on the outside pairs of girders were placed to support the traveler tracks.

The gallows frame traveler which was used in the erection of the new structure was 139 ft. 10 in. high from top of rail to top of trolley girders and consisted of two pairs of bents placed 35 ft. 9 in. center to center in the direction of the tracks. Each pair of bents carried a pair of trolley girders which supported trolleys equipped with main falls of 14 parts of 7/8-in. wire rope and auxiliary falls carrying a single sheave block. The hoisting engines were carried on trailers standing on the traveler track. The heaviest member erected with this traveler weighed 129 tons.

All parts of the old span were removed by a locomotive crane, the members being cut apart with an oxy-acetylene torch. The work was started at the south end, the old deck span being replaced by the new steel first. The new span was detailed to have a camber of 1 ft. 4½ in. as erected (un-

der no stress), which reduced to a camber of 7.32 in. when under dead load after the span had been swung free of the falsework.

The deck spans were replaced under traffic, using a small tower traveler standing astride the operated track and supported on rails 19 ft. 2¾ in. center to center. This was made of frame posts and floor beams taken from the old structure.

Special Problem in the Lift Span

The replacement of the old swing span by the new lift span was a problem of no mean proportions since the work had to proceed with a minimum of interference with the operation of both rail and canal traffic. The solution was to place the south half of the old span on falsework and replace the north half by a temporary lift span consisting of a pair of 88-ft. girders raised and lowered by lines from gallows frames supported on bents adjacent to each side of the north draw opening. A minimum interference with the canal traffic required that the interval from the time that the swing span was rendered inoperative until the temporary lift span was ready for use should be as short as possible. This was accomplished as follows: The lift span was delivered on the bridge on two flat cars and was picked up by lines from the gallows frames so that the cars could be released. The portion of the old floor system under the temporary span was cut away from the trusses, most of it being lashed to the under side of temporary girders which were then lowered into a position to carry traffic. One hundred feet of the north ends of the old trusses was then cut away and removed so as not to obstruct the channel when the lift span was raised.

The temporary lift span was raised and lowered by means of hand crabs, the span was counterweighed by means of rails suspended from the falsework. The operation of opening and closing the span occupied about 20 min.

After the temporary lift span was installed the towers for the permanent lift were erected and the portion of the old span over the south channel and the pivot pier was replaced by the portion of the new span shown in full lines in the drawing. Navigation was then closed and the remaining members of the trusses were placed by the cantilever method, the temporary span being maintained operative between them. When the trusses were completed the traffic over the bridge was stopped and the temporary span removed and replaced by the permanent floor system, whereupon the bridge was restored to rail traffic after an interval of eight hours. The blockade of the canal traffic from the time that the truss members fouled the channel until the new lift span became operative was seven days, but as the river traffic was inconsequential the delay was of little concern.

The erection of the bridge, with the use of the operating track by work trains supplying material for the new structure and removing the material released from the old one, introduced possibilities of serious interference between the construction operations and the conduct of revenue traffic. This was overcome by adjusting train schedules to avoid the movement of revenue trains on the bridge during the workday hours. Some of the trains were diverted to other bridges crossing the Ohio at Louisville; concentration of movements was also arranged at night and during the noon hour.

This bridge was designed and built under the direction of J. C. Bland, bridge engineer of the Pennsylvania Lines West. The Pennsylvania Steel Company, Pittsburgh, Pa., had the contract for the entire superstructure, the erection being under the direction of J. L. Poffenberger, engineer, and J. J. Kelley, general foreman. The masonry changes were made partly by the railroad and partly by separate contractors. The work on the substructure for the lift span, after being partly completed under an independent contract was taken over and completed by the Pennsylvania Steel Co.

Labor Recruiting Conference at Chicago

A CONFERENCE ON WAGES and means of recruiting labor for railroads was held in the auditorium of the Insurance Exchange Building, Chicago, January 20 and 21. It was called by the Federal Employment Service for the purpose of developing, if possible, some means of co-operation between officers of the railroads and the Employment Service and was attended by some 25 railroad officers and representatives of various departments of the Federal Service. Sanford H. E. Freund, director of the clearance division, United States Employment Service, Washington, D. C., presided.

In their opening addresses Mr. Freund and Charles J. Boyd, general superintendent of the Illinois free employment offices, expressed the opinion that while there is a well defined labor surplus at the present time, there is every reason to believe that there will be a decided labor shortage within a very few months, particularly in common labor. The reasons given for this are the rapidity with which men released from the army and war industries have been placed in positions and the fact that this country is now short 2,000,000 men through the failure of immigration in recent years, since it has always been the immigrant who has afforded the supply of common labor in the past. Mr. Freund urged upon the railroad men the necessity for co-operating with the 750 government agencies. He said that competition between the federal bureaus and those maintained by the railroads would be harmful to both and would increase the labor turnover.

In speaking for the railroads, W. G. Beird, federal manager of the Chicago & Alton, admitted that the railroad situation was grave, particularly with respect to unskilled labor. A particularly unfortunate feature in connection with the unskilled labor is that it is less efficient than formerly, so that one of the most important problems is to restore it to its former efficiency. He said that after listening to considerable of the discussion it was his opinion that there was a missing link between the organizations of the Federal Employment Service and the railroads and as a means of securing this necessary connection he believed it should be the sense of the meeting to call upon the United States Railroad Administration to appoint a committee to confer with representatives of the Employment Service to formulate the necessary means of united action.

Representatives of a great many of the different state branches of the Federal Employment Service spoke of the success of their work, quoting figures as to the large number of men to whom they had given employment. They decried the failure of railroad officers to co-operate with them and assumed a rather critical attitude concerning the employment practices of the railroads. Exception was taken to this by Robert H. Ford valuation engineer, Chicago, Rock Island & Pacific, who reviewed the labor problem of the past few years in detail and called attention to the fact that the problem is not solely one of searching out the man without a job and putting him to work, but also of keeping him at work. This means that the working and living conditions must be favorable. Moreover, the floater must be prevented from traveling all over the country at the expense of the railroads. He gave as one reason why the federal service was unable to supply men properly during the past year, that they were too much concerned with supplying men for other employments at higher rates and cited instances of the intense competition of varied independent agencies of the Employment Service with each other. He also quoted from orders of the regional director of the Western region warning railroad officers that applications for men at the Federal Employment offices did not relieve the railroad man of

responsibility for an adequate supply of help to conduct his work properly. He made several recommendations for the improvement of the Employment Service so that it could secure the confidence of the railroads and therefore their co-operation.

The method of soliciting men must be simplified. Common labor is scared away by an excess of examination and red tape. The Employment Service must also accomplish a complete co-operation of all branches of its own organization. The transportation of men back and forth across the country must be stopped. The employment of common labor must be separated entirely from that of skilled labor. The state employment agencies should work for the necessary legislation to remove present abuses in employment and vagrancy. Some form of regional control of the railroad's part in employment activities should be provided.

In discussing the distribution and transportation of labor C. A. Griswold, Chicago & North Western, said that all agencies are imposed upon by persons who wish to obtain transportation to some distant point without expense. He suggested that the solution of this would be to apprehend a few men who have followed this practice and have them arrested and fined. Mr. Griswold was followed by H. E. Ballou of the Chicago, Burlington & Quincy employment agency. He related some of the details of the administration of the employment and distribution of men as carried out by the agency of the single railroad and contended that an objectionable multiplicity of details would obtain when a single agency was supplying men to all of the railroads in the tributary territory. At Chicago he estimated this would represent some 110 operating divisions.

The advisability of centralized supervision of central west territory was discussed by Mr. Freund and W. J. Towne, assistant general manager of the Chicago & North Western, who spoke in place of R. H. Aishton, director of the Northwestern region, whose name appeared on the program. Mr. Freund called attention to the fact that the Federal Employment Service had been organized as a war emergency and that it had been called upon immediately for assistance from all sources. One of the principal difficulties from which it suffered was the lack of any unified organization of labor on the part of the government war activities. Conflicting demands were received from various departments which were so urgent that it was necessary to deal with these various calls as they came without much attempt at co-ordination. Under these circumstances the employment service could not afford the railroads as much assistance as would be possible under a more highly developed organization. Under present circumstances he contended that these objections no longer exist.

Mr. Towne agreed that centralized control of labor distribution was desirable and favored a movement toward that end. Assuming that centralized supervision must come it is desirable to avoid its disadvantages. The system must be made sufficiently flexible to enable railroads to employ labor locally without any formality. The advantages of unification are a standardization of rules and practices and the elimination of duplicate effort. The principal disadvantage is a tendency for a large organization to become slow in operation. In closing he favored the formulation of some kind of a recommendation to the director general of railroads which would outline the course to be pursued.

This took definite form in a resolution presented by Mr. Ford, that it was the sense of the meeting that the director general of railroads, the regional directors and the director general of the United States Employment Service be urged to designate representatives fitted by training and experience, to act on a central committee to co-ordinate activities in recruiting and stabilizing labor to the end that unrestricted competition and duplication of facilities and effort be eliminated.

Mr. Hines Addresses Passenger Men*

MANY YEARS AGO a celebrated wit in Kentucky, in a speech to commercial travelers, said the commercial traveler was the "commercial evangelist," and it seems to me it could fairly be said that you gentlemen are the evangelists of the public service. It is you who have to spread the gospel of the proper sort of public service and who see that that gospel is lived up to. Since it is the cardinal point of my administration that we must serve the public in the best possible way, I turn to you for help. . . . Do not be disturbed by reports calculated to discredit the Railroad Administration. A prominent story published in some newspapers yesterday indicated that there was a serious conflict between the Interstate Commerce Commission and the director general over a question of jurisdiction. There is no foundation for that contention. The fact is that there has never been the slightest difference of opinion between the Interstate Commerce Commission and the director general as to their respective jurisdictions. There has been the most cordial and beneficial co-operation between the commission and the director general. We have found nothing but the most sympathetic understanding of our problems and the most earnest desire to co-operate with us in making a success in discharging the responsibilities which rest upon us. If railroad officers and employees are confronted day by day by such unfounded reports the tendency will be to impair the morale of the railroad organization, and that above all things is what I wish to avoid, and I wish to get your co-operation in avoiding it.

I, as director general, and all my associates in the central railroad administration, have a single-minded purpose, to serve the public to the best of our ability and to face the facts, whatever they may be; and give the public the benefit of those facts, and to secure at all times the understanding and the co-operation of every interest, whether public or private.

Whatever may be the future of the railroad problem every interest affected will be promoted by the continued maintenance of the best possible railroad system, rendering an adequate public service; we are to keep on giving the best public service and of finding ways of improving it. The war and its hardships are over, and the hardships from the standpoint of the passenger service were, of course, very serious. People did not have adequate space, there was no opportunity to give them adequate information in all cases, and in a great many ways they were subjected to serious inconvenience. We must now endeavor to re-establish the same convenient and comfortable form of passenger service which was available before, and we must do everything we can, within reason, to make that service more convenient and more comfortable than before. I have particularly in mind the point of providing adequate information for the public, the point of seeing that the public is treated with courtesy and the point of seeing that there are facilities adequate for comfortable travel; these are points of paramount importance. I hope that you will find it practicable to perform to an increasing degree the careful inspection of stations, passenger trains and dining cars, and do not forget the important point, whether or not trains are run on time.

Do not take as a necessity any unsatisfactory condition you may find. Don't assume that that condition has to be because of federal control of the railroads. View the matter from the standpoint that if the thing is unjustifiable on its merits a way ought to be found to correct it and that the government owes it to the people to correct it; and I want you without hesitation to use your initiative in these matters and to bring to the proper officers of our Railroad Administration the recommendations with the confident belief that they will be considered on their merits and with the most earnest desire to promote the public service.

*Address at the annual convention of the American Passenger Traffic Association, at Washington, D. C., January 22; abridged.

Doings of the United States Railroad Administration

Director General Faced With Big Financial Problems; Complicated By Falling Off of Traffic

WASHINGTON, D. C.

AS AN INDICATION of the condition to be faced by the railroads if they are to be restored to their owners this year, preliminary estimates of earnings and expenses for 1919 which have been considered by Director General Hines and his staff, including the regional directors who spent most of last week in Washington, are said to forecast a deficit of approximately $250,000,000 for the year. Mr. McAdoo in his testimony before the Senate committee on January 3, estimated that with the same volume of traffic as last year the railroads would earn a surplus in 1919 above the guaranteed rental of $100,000,000, and on this he based a prediction that unless the volume of traffic should be reduced, rates might be decreased during the year, certainly by the end of the year. It is now recognized that there is no chance for any decrease in rates. Increases in payrolls far exceeding the estimates which had been made of the effect of the various wage increases ordered during the past year account for a large part of the difference in the estimates, as later figures have become available since Mr. McAdoo made his optimistic assertions just before his departure. An additional increase in pay for the members of the train service brotherhoods, which has been under consideration by the Board of Wages and Working Conditions and which, it is said, may run up to $100,000,000 a year, is another factor which Mr. McAdoo may have overlooked. Mr. McAdoo estimated the previous wage increases at $600,000,000 to $700,000,000, but some of the wage orders had not then been in effect long enough to afford accurate figures as to their amount.

The Railroad Administration is not making its figures public, particularly in view of the uncertainty as to the volume of traffic to be expected, as business has been declining rapidly since the signing of the armistice. The fact that estimates showing a prospective deficit had been made and that the regional directors had recommended that it be met by a further increase in rates or by asking an appropriation of Congress, got into print, however, and elicited a prompt denial from Director General Hines that an increase in rates was being considered.

"There is no foundation," he said, "for the report that the Railroad Administration has given or is giving any consideration to any increase in the present basis of rates." As to the reports regarding the estimated deficit, he said: "The results of operations for the year will be largely dependent upon the volume of traffic. If the volume of traffic should be as large as last year, it is believed the operating income would be sufficient to pay the rental. As soon as any reasonably satisfactory conclusion as to the probable volume of traffic can be formed, the public and Congress will be given the best possible estimate of the prospects for 1919."

It is expected that he will give this estimate when he asks Congress for an additional appropriation for the revolving fund, which, as previously announced, is proposed primarily to enable the Railroad Administration to make advances to railroads for capital expenditures. Mr. Hines said the amount to be asked would probably exceed $500,000,000. The unexpended balance of the capital expenditures authorized in 1918, plus an estimate of $350,000,000 for 1919, would make a program for the year of $1,039,000,000. How much of this would have to be advanced by the Railroad Administration would depend on how much of it is actually carried out and on how much of it could be financed by the railroad companies themselves. If the amount should be reduced or if the companies could take care of a large part of it or could take up some of the loans made to them last year from the revolving fund, a part of the original appropriation of $500,000,000 might be made available for making up the operating deficit, which for 1918 probably considerably exceeds $200,000,000, without taking into account a large amount of unpaid claims and whatever amount it is finally decided the government owes the railroads for deferred maintenance.

Mr. Hines has issued the following statement regarding the revolving fund:

"In view of the constant discussion of the railroad problem which naturally is now going on because of the pendency of the issue before the Congress, and since a great deal of stress is being laid upon the financial condition of the carriers under federal control, it should be helpful to comprehend some outstanding facts regarding the so-called 'revolving fund.'

"It is important to understand that the mere fact of taking over the railroads as going concerns involved the temporary absorption of about $340,000,000 of the government's money, and that if the operation of the railroads for the year 1918 had not involved any loss whatever it would still be true that about $350,000,000 of the revolving fund would be thus absorbed all during the period of federal control.

"On any given date a large amount of cash is in the hands of railroad conductors and railroad freight and ticket agents throughout the country. On the date the government took possession of the railroads this amount was about $140,000,000. This was of course credited to the railroad corporations and in settlement with them for the first year the government has to pay that amount in addition to the rental. Of course, at the end of government control the railroad companies will pay back to the government whatever amount (probably the same or more) may then likewise be in the hands of conductors and agents.

"It is also true that approximately $200,000,000 of working cash capital has to be kept on hand at all times in the hands of the federal treasuries of the United States Railroad Administration and in the hands of the Central Administration. Since the operating expenses average perhaps $325,000,000 per month, this working cash capital of $200,000,000 is relatively small. Nevertheless it absorbs for the time being that much of the resources of the Railroad Administration. At the end of federal control this cash will be released and will come back to the government; for the time being it is tied up in the conduct of the business in exactly the same way that the working cash capital is tied up in any other business.

"The result is that in making the first year's settlement with the railroad companies the Railroad Administration will have to use $340,000,000 which in the last analysis must come out of the revolving fund and to that extent the use of the revolving fund represents no suggestion of loss, but purely an inevitable absorption of cash for the time being.

"It must also be remembered that it has been the policy of the government that the Railroad Administration shall finance temporarily a large part of the permanent improvements which have been made and which still must be made by the railroads during federal control. The amount required for these purposes promises to be several hundred million dollars, which likewise will ultimately be returned to the government. It is evident, therefore, that the absorption of the original $500,000,000 appropriation and the

making of a very large additional appropriation will be needed for these essential purposes entirely apart from any question of losses which were incurred in operation during the war conditions which confronted the railroads in the first year of government control."

T. C. Powell Director of Capital Expenditures

As briefly noted in last week's issue, Thomas Carr Powell, recently manager of inland traffic of the War Industries Board and formerly vice-president of the Cincinnati, New Orleans & Texas Pacific and Alabama Great Southern, has been appointed director of the Division of Capital Expenditures, succeeding Judge Robert S. Lovett. Mr. Powell is a man of wide railroad experience, and since the entrance of the United States into the European War has been engaged in important war work for the government. In November, 1917, he was detailed by the Southern Railway to assist Judge Lovett in the work in connection with the office of director of priority in transportation and on July 1, 1918, he was appointed by Mr. McAdoo as special representative of the Railroad Administration with the title of manager inland traffic of the War Industries Board. He was also a member of the priorities committee of the War Industries Board.

Thomas C. Powell

Mr. Powell was born September 5, 1865, at Cincinnati, Ohio, and since 1884 has been engaged in railroad service on lines connected with the Southern Railway System. Starting as mail clerk for the Cincinnati, New Orleans & Texas Pacific, he was consecutively rate clerk, chief rate clerk and chief clerk to traffic manager of the same road. On June 1, 1893, he was appointed assistant general freight agent of that road; on November 1, 1895, chief clerk to the general freight agent of the Southern Railway; on August 4, 1898, general freight agent of that road and the Northern Alabama; on July 1, 1899, assistant freight traffic manager of the same roads; on March 15, 1901, freight traffic manager, and on April 1, 1905, vice-president of the Southern Railway in charge of traffic. On August 1, 1907, he was also elected vice-president in charge of all departments of the Cincinnati, New Orleans & Texas Pacific and the Alabama Great Southern.

Embargoes Under Regional Directors

The Car Service Section and the regional directors have been working out plans for a revision and regrouping of the zone embargo committees so that the issuance of embargoes will be placed to a greater extent under the jurisdiction of the regional directors, who believe that they will thus be able to eliminate the necessity for issuing embargoes in many cases. There are now 20 of the zone embargo committees and it is proposed to regroup the zones to correspond to regional lines, although there will be more than one zone in a region, reducing the number from 20 to about 15. There will be one at each regional headquarters, two for Canada and additional committees at Boston, Cincinnati, Seattle, Dallas, and possibly New Orleans and Wilmington. Under the new plan railroads will not issue embargoes without the approval of the regional director, who may be able to take action to avoid the necessity.

Contracts Signed

The director general has signed a compensation contract with the Great Northern providing for an annual rental of $28,771,360.78. The contract also covers the following subsidiaries: Duluth & Superior Bridge, Duluth Terminal, Great Falls & Teton County, Great Northern Equipment Company, Great Northern Terminal, Minneapolis Belt, Minneapolis Western, Montana Eastern, Watertown & Sioux Falls. In addition co-operative contracts have been signed with the following short line railroads: LaCrosse & Southeastern, Coudersport & Port Allegany, Pittsburgh, Lisbon & Western, Kalamazoo, Lake Shore & Chicago, and Paris and Mount Pleasant.

About 30 contracts are now nearly ready for execution, but new action on them will have to be taken by the directors of the various companies because of the change in the name of the director general so that Mr. Hines can sign them, and it is expected that the bulk of the contracts with the railroads will be executed in the next 60 days.

Max Thelen Director Division of Public Service

Effective on February 1, the existing Division of Public Service and Accounting, which has been under the jurisdiction of C. A. Prouty, will be reorganized into two divisions, the Division of Accounting and the Division of Public Service. Max Thelen, formerly chairman of the California Railroad Commission, and recently supervisor of contracts in the War Department and assistant to Major General Goethals, has been appointed director of the Division of Public Service; and Judge Prouty will continue as director of the Division of Accounting. Judge Prouty had desired to be relieved of some of the numerous duties devolving upon him and in order to continue his valuation work for the Interstate Commerce Commission, decided that it was necessary for him to give up some of his work for the Railroad Administration.

Max Thelen

Mr. Thelen is a man of wide experience in dealing with the relationship between the public and the railroads. After serving as attorney for the Western Pacific from 1906 to 1911, he became attorney for the California Railroad Commission, serving in that capacity until 1915. In 1912 he became a member of the California Railroad Commission, and served as chairman of the commission from January, 1915, to June, 1918. In 1916 he was president of the National Association of Railroad Commissioners. Leaving the California Railroad Commission, he came to Washington in June, 1918, to engage in war work, and was appointed supervisor of contracts in the War Department and assistant to Major General George W. Goethals, director of Purchase, Storage and Traffic of the War Department.

The Bureau of Complaints and Suggestions, which has been operated under the direction of Theodore Price, actuary of the Railroad Administration, is to be transferred to the new Division of Public Service.

Board of Railroad Wages and Working Conditions

The Railroad Administration has made public the chapter from Mr. McAdoo's forthcoming report to the President for 1918 dealing with the work of the Board of Railroad Wages and Working Conditions. The report gives a brief outline of the functions of the board and a list of the supplements and interpretations to General Order No. 27, which have been issued based on its recommendations. In addition, the board now has before it four major investigations, as follows:

1. Wages and working conditions of engineers, firemen, conductors and trainmen in road and yard service.
2. Wages and working conditions of employees engaged on sleeping, dining and business cars.
3. Wages and working conditions of employees in the police department.
4. Wages and working conditions of employees of the American Railway Express Company.

Hearings in all of the above cases have been conducted, and the board is now considering the merits of the claims presented; and it is hoped it will reach a conclusion in the very near future. The report says:

"While very substantial increases in wages and greatly improved working conditions have been granted by recent wage orders, they have generally been less than men performing similar service for industrial concerns engaged in war work are receiving, which differentials are considered warranted on account of the permanency of employment on railroads, while the employment in other government activities was brought about by war conditions, and is more or less transitory. The object has been kept constantly in mind of creating a wage structure which in its essentials would survive the war period."

Interstate Commerce Commission Decides Against Railroad Administration

The Interstate Commerce Commission has again overruled contentions advanced by counsel for the Railroad Administration in a case involving the relationship of rates increased by the director general's General Order No. 28, deciding that the rates on lumber and other forest products from Humboldt Bay points on the Northwestern Pacific north of Willits, Cal., to eastern points are unjust and unreasonable, in violation of section 10 of the federal control act, to the extent that they exceed the rates from California coast group points. The relation complained of existed and the evidence had been taken before the general increase in rates. Counsel for the administration at one time argued that under the federal control act there no longer exists any such ground of challenge to a rate as discrimination and that the commission was without power or jurisdiction to adjudicate the case. This position was subsequently modified and it was admitted that the commission had jurisdiction to determine the reasonableness of rates with reference to their relationship as well as to the measure of the rates, but it was then contended that the commission should take judicial notice of the abnormal condition of the lumber business during the war and that "the importance of rates and rate adjustments has disappeared to a very large extent for the period of the war," because no matter how high the freight rate the shipper did a profitable business.

Commissioner Aitchison in the decision says that "the more abnormal other conditions, the greater would seem to be the need for unswerving fidelity to the standards of justness and reasonableness in transportation charges" and the commission also took judicial notice that the war is at an end.

Because some newspapers featured this decision as indicating a conflict between the commission and the Railroad Administration, Director General Hines issued a statement saying in part:

"It is distinctly unfortunate that several newspapers, in reporting the decision in the Pacific Lumber Company case, have drawn the conclusion that there exists a controversy over the relative jurisdictions of the director general and the commission. It appears to be assumed in these stories that the director general has denied or sought to contest the right of the Interstate Commerce Commission to review rates initiated by him on behalf of the President. As a matter of fact, nothing could be further from the truth. The federal control act places such power of review specifically in the hands of the Interstate Commerce Commission, and the director general, time and time again, has recognized this authority by being represented before the commission by counsel who have argued as to the merits of contested rates.

"At no time since the government took possession and control of the railroads has there been the faintest suggestion of any conflict in jurisdiction between the commission and the director general. The most satisfactory understanding has existed as to the functions of each. At all times the director general has enjoyed the co-operation and assistance of the commission, and assurances to this effect have been most cordially given to the new director general. He is in entire accord with the statements which the commission has made in this case relative to the extent of its jurisdiction and there is no basis for assumption of any controversy on this subject." As indicative of his reliance on the commission the statement includes a letter sent by him to Chairman Daniels of the commission, on January 17, asking for suggestions and co-operation.

Zone and Price Regulations on Bituminous Coal and Coke Lifted

Governmental restrictions on the prices of coke and all coal, except Pennsylvania anthracite, and the zone regulations covering the movement of these fuels by rail will be suspended on February 1, it was announced by the Fuel Administration. Restoration of both zone and price regulations will be immediately liable, should changing price, wage, labor, production, or other conditions demand it, the announcement said. It was estimated that when the President decided last May that the railroads should pay the government prices their fuel bill was increased by $45,000,000.

The accumulation of stocks of bituminous coal sufficient to guarantee consumers a full winter's supply, is one of the basic reasons for the suspension of the regulations. On January 1 the average stocks of bituminous coal for the country were approximately sufficient for seven weeks' consumption and in the regions farthest from the mines 20 weeks' supply was on hand.

Zone regulations worked out by a joint committee of the railroad and fuel administrations were announced in March, 1918, dividing the country into 14 districts, and are credited with having saved the railroads 160,000,000 car miles, by eliminating cross hauls and allotting consumers to the nearest mines. The relation of this saving to the enormously increased production of coal in the United States is obvious. Under the spur of war demand production of bituminous coal in the United States in 1917 increased some 50,000,000 net tons over 1916, and there was a 12,000,000-ton increase in anthracite production. The railroads were required in 1917 to handle more than 60,000,000 tons of coal in excess of their 1916 load.

The Fuel Administration called special attention to the fact that the prices established under the provisions of the Lever act have been maximum prices, based on the cost of production, rather than on quality of coal, and that in the return to normal a different relation between prices in the several fields, based as in normal times on quality of coal, may fairly be expected to obtain.

Walker D. Hines, director general of railroads, has issued a statement denying that the Railroad Administration proposes to pursue a policy of so combining and using its purchasing bureau as to break down coal prices with the result of forcing a reduction in the existing rates of pay for mining labor. It is the policy, he says, to avoid at this time any undue concentration of its purchasing power of coal and to accomplish this purpose by permitting each road to purchase its own coal. It is further the policy to require that all bids made and accepted shall be based on the existing scale of wages; there can be no excuse, therefore, for the making of the claim that coal operators are forced to reduce wages by reason of the Railroad Administration accepting any prices which may hereafter be offered it for coal. It is already fully understood that the railroads are not to use the car supply as a means of affecting prices. The policy on the other points above referred to, is being clarified by the issuance of the following specific instructions to the purchasing agents of the roads:

1. The railroads must not violate existing contracts or cancel contracts where the quality of coal is in accordance with specifications, without special consideration by the Central Advisory Purchasing Committee of the reasons for cancelling.

2. The purchasing agent of each individual railroad shall buy the coal for that road under the supervision of the regional purchasing committee of his region. In all requests for bids, the following paragraph should be inserted:

"It is distinctly understood that all bids are to be based on existing rates of pay for all mine labor, and the price will be subject to readjustment in event existing rates of pay are changed."

On contracts awarded or orders placed, the following paragraph should be inserted:

"It is distinctly understood that the prices named herein are based on existing rates of pay for all mine labor and the prices will be subject to readjustment in event existing rates of pay are changed."

3. For coal which it is necessary to purchase for requirements prior to April 1, 1919, the purchasing agents of each railroad should request that bids be submitted. They shall not undertake to fix the price of the seller's acceptance or make offers therefor, and shall agree only upon a price that shall be contingent upon the pay-for-mine-labor clause in paragraph No. 2. No negotiations for contracts for coal for delivery after April 1, 1919, should be undertaken without first obtaining the approval of the regional purchasing committee.

Conflict Between Authority of States and Director General

Railroad Administration officials do not seem to be worrying much about such action as that by the Ohio Public Utilities Commission which formally rejected the higher express rates initiated by order of Director General McAdoo on the ground that Ohio laws as to the filing of tariffs was not complied with. Mr. McAdoo recently issued a statement in which he made it clear that he was not going to be influenced by attempted state interference with his orders and it is stated that the increased express rates will continue to be collected in Ohio regardless of the action of the commission, just as they have been in a number of western states where the state authorities have refused to recognize the director general's authority over intrastate rates. The attitude of the Railroad Administration is that the law authorizes the President to initiate rates and makes no reference to state rate-making functions.

Director General Asks Rate Committees to Expedite Rate Revisions

Walker D. Hines, director general of railroads, has sent the following telegram to B. Campbell, chairman of the Eastern Freight Traffic Committee, New York City; A. C. Johnson, chairman of the Western Freight Traffic Committee, Chicago, Ill., and N. B. Wright, chairman of the Southern Freight Traffic Committee, Atlanta, Ga.: "In taking up the duties of director general, I desire to express to your committee and the district committees my appreciation of your devotion to the work and intelligent effort on behalf of the Railroad Administration and my predecessor, and to ask your continued support. With the cessation of hostilities, it is both more practicable and more necessary that the important rate matter, coming under your charge, should be disposed of promptly, and that the patrons of the roads should be able to secure a decision with the least delay, and I ask you to do all that is possible in this direction under the present conditions."

Surplus Cars to Be Sent to Western Regions

Plans for the disposition of the large accumulation of surplus freight cars in the east, estimated to amount to 50,000 to 75,000, were arranged at a meeting in Washington last week of the assistant regional directors and the Car Service Section. In the east both box and coal cars have become a drug on the market. Surplus box cars suitable for grain will be sent to the western regions via Chicago, Peoria and St. Louis, to be stored until they are needed and then distributed to the railroads by the regional directors. Some difficulties which have been experienced because of the rejection of cars at the wetern gateways by inspectors on account of their condition were also ironed out at the meeting.

Capital Expenditures for 1918

Total expenditures in connection with improvements and equipment chargeable to capital account for the calendar year 1918 amounted to $573,334,119 for Class I roads, as compared with total authorizations amounting to $1,218,969,505, according to a special statement compiled by the Division of Capital Expenditures. The figure for expenditures represents actual returns for eleven months and an estimate for December. The total includes $265,931,052 for additions and betterments, $289,388,544 for equipment, and $18,014,523 for extensions. Of the equipment $171,000,000 was on purchases by railroad companies and $117,000,000 on purchases by the Railroad Administration, of which $57,930,129 represents cash advanced on undelivered equipment. The total authorizations include $16,522,002 for equipment unassigned and equipment assigned to terminal and switching companies.

Operating Officers May Be Served in Suits

Director General Hines has issued General Order No. 50-a amending General Order No. 50, issued on October 28, providing that service of process in suits for claims for personal injury or for loss and damage may be made upon operating officials, operating for the director general of railroads, in the same way that service was heretofore made upon like operating officials. But the pleadings in such actions may on application be amended by substituting the director general of railroads for the carrier company as party defendant and dismissing the company therefrom. This will obviate the necessity for securing personal service upon the director general which has become of such frequent occurrence as to constitute something of a nuisance.

Committee on Automatic Train Control Organized

The Committee on Automatic Train Control appointed by the Railroad Administration held its first meeting for organization at Washngton on Thursday and, after deciding to appoint an executive secretary, discussed in a preliminary way the requisites which must be met by an automatic train control system. It reviewed the list of requirements drawn up by the American Railway Association in 1914. This subject will be considered further by the individual members of the committee and it is expected to promulgate a list of requirements after the next meeting on February 4.

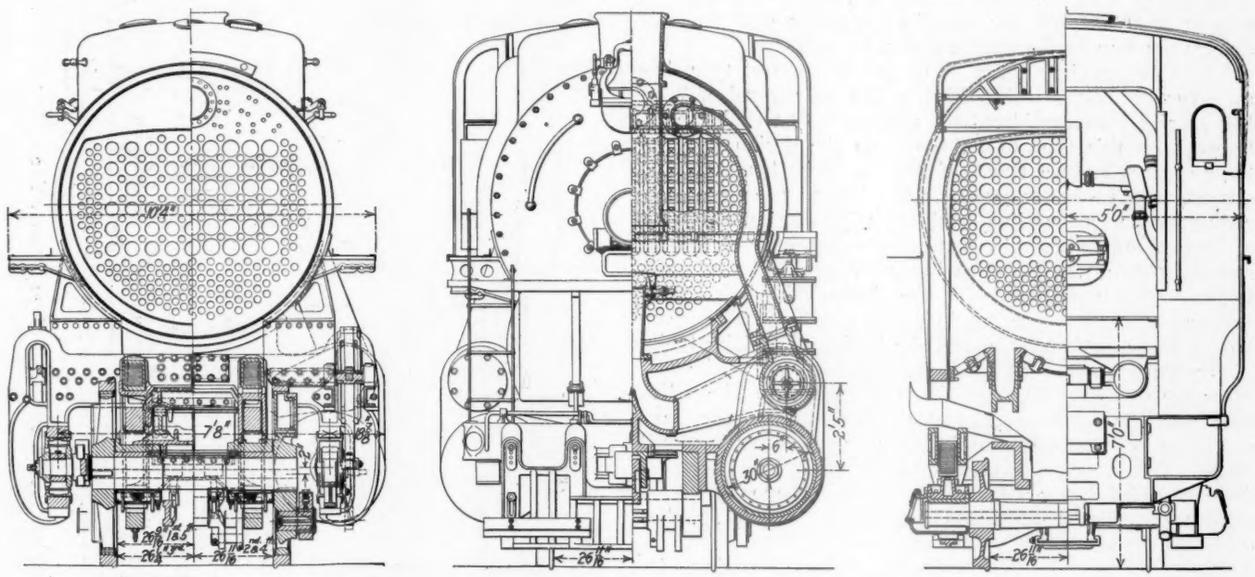
The St. Louis Chapter of the American Association of Engineers was installed at a banquet at the Planters' Hotel, St. Louis, on the evening of January 18. About 150 members were enrolled.

Heaviest 2-10-2 Type Built for Pennsylvania Lines

Design Permits Operation on 23 Deg. Curves; Pilot Meets Requirements for Road or Yard Service

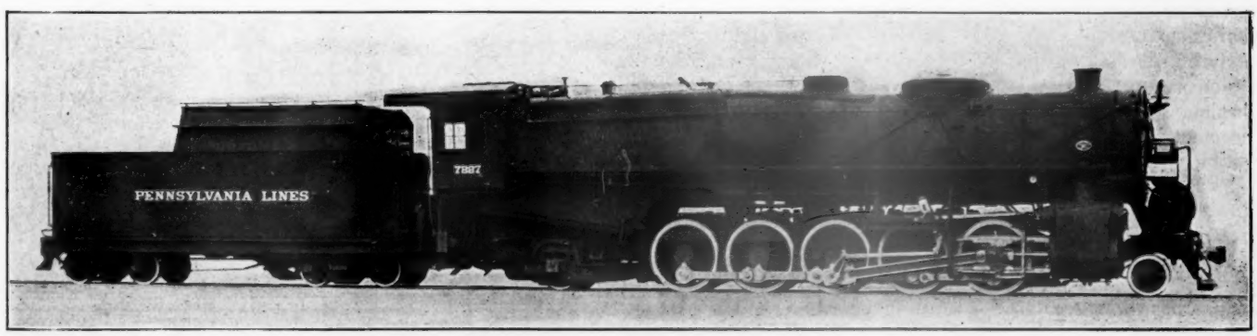
THE PENNSYLVANIA LINES WEST of Pittsburgh have recently received from the American Locomotive Company several locomotives of the 2-10-2 type which are notable for two reasons. The total weight is greater than for any engines of this type previously built and yet they are able to operate on 23 deg. curves. Although these locomotives are extremely heavy they are in service on a division with low grades. All that have been received thus far are in use on the lines running from Conway Yard, near Pittsburgh, Pa., to Ashtabula, O., and Erie, Pa. The larger part of the traffic being handled is ore moving from Ashtabula to Conway, and coal from Conway to Ashtabula. The ruling grade on this line is 0.3 per cent and the engines are handling approximately 85 loaded ore cars, the rating being 7,100 adjusted tons, which amounts to about 6,000 actual tons.

The Consolidation type has long been the standard for freight service on the Pennsylvania Lines West of Pittsburgh. The recent designs developed practically the limit of the tractive effort obtainable with four driving axles. As the traffic conditions demanded heavier motive power, it was felt that the increase in tractive effort which would be secured with the Mikado type would be so slight that it was best to go to the use of five driving axles. This 2-10-2 type, which is known in the company's classification as the N-1-s was therefore designed. Orders have been placed with the American Locomotive Company for 35 of these locomotives and 25 of them are to be built at the Baldwin Locomotive Works.



Sections of Pennsylvania Lines West 2-10-2 Type Locomotive

Locomotives with five coupled pairs of driving wheels and a lateral motion driving box on the front axle cannot traverse curves sharper than 16 deg. In order to enable these engines to pass 23 deg. curves both the front and rear drivers are fitted with the Woodward floating axle. The tires on these wheels are set 53⅛ in. apart and the main driving wheels have blind tires. In order to permit of coupling on sharp curves a pilot drawbar with a long shank is used and the pilot beam casting is cored out where the coupler enters



2-10-2 Type Locomotive for the Pennsylvania Lines West

so that it can swing some distance on either side on the center.

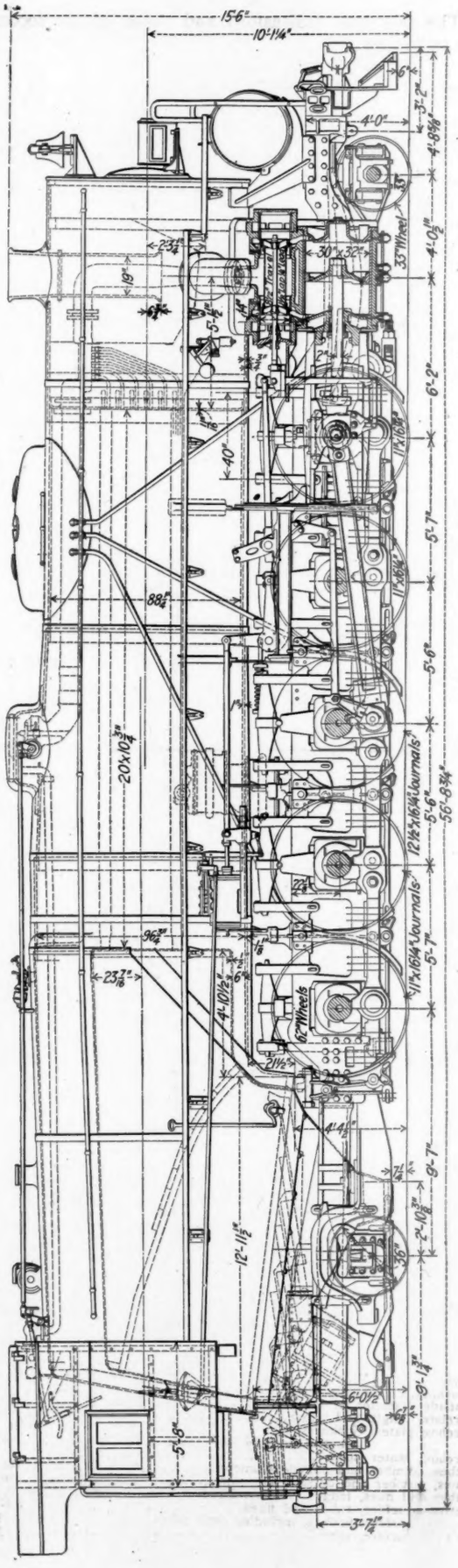
While designed primarily as a road engine, this type is well adapted for use in hump yard service. A unique design of cast steel road and switching pilot worked out by representatives of the Pennsylvania Lines West has been applied which makes it possible to use the engine in either service without the delay incident to removing the pilot and applying footboards or vice versa. Details of the pilot are shown in one of the illustrations.

The equalizing system is a very unusual departure from standard American practice. Instead of the three-point suspension introduced by Eastwick & Harrison in 1838, which has been universally used in this country for many years, a four-point suspension has been adopted. The leading truck is equalized with the front driving wheels, the three center drivers on each side are equalized together and the rear drivers are equalized with the trailing truck.

The valve motion, which is of the Walschaert type, has an extremely long travel. While a full gear travel of 7 in. has usually been considered the maximum that could be attained with this type of valve motion the design used on these engines gives a travel of 8½ in. The long travel is secured without excessive angularity by the use of a long radius rod and a long link combined with an eccentric crank of large throw. A similar arrangement has been in use for some time on a Consolidation locomotive and the results obtained have demonstrated that the theoretical advantage of the long travel is borne out in actual practice. The steam lap of the valve is 1⅛ in. and the lead ¼ in. The 14-in. piston valve has a long spool and the passages to the cylinder are made as short and direct as possible. The cylinders, which are 30 in. in diameter with a 32-in. stroke, have a Z-shaped piston with a cast steel center and a cast iron bull ring. The cylinder lubrication is effected by a two-feed force feed lubricator attached to the left steam chest. A two-feed hydrostatic lubricator, located in the cab, supplies oil to the air pumps and stoker engine cylinders.

The boiler has been designed with a view to securing adequate firebox volume and a large fire area through the tubes. The firebox is fitted with a brick arch and has a combustion chamber approximately 5 ft. long. There are 54 flues of 5½ in. diameter and 196 tubes 2½ in. in diameter. While the total heating surface is decreased by the use of the larger tubes, experiments have demonstrated that as tubes are lengthened beyond a certain point the evaporation does not increase proportionately. The most desirable ratio of length to internal diameter is approximately 100 and by using 2½-in. tubes this ratio is secured. Although the locomotives are now operating with a boiler pressure of 205 lb. the boiler is designed to carry 250 lb. The weight on the driving wheels is sufficient to permit of securing additional tractive effort and still maintain a satisfactory factor of adhesion. The Crawford underfeed stoker is applied to these locomotives. The driving cylinder is placed in inclined position on the left side of the engine.

The location of the main reservoirs presented a difficult problem. It was finally decided to place a 36-in. diameter reservoir ahead of the cylinder saddle. The braces leading from the smokebox to the frame are steel castings which also serve to support the reservoir. A three-rung ladder leads from the pilot beam to the running board. The air piping is arranged under the running board bracket which is designed especially to receive it. Two sets of 13-in. by 12-in. brake cylinders are set between the first and second drivers, both working on the same levers and operating the shoes on all five pairs of driving wheels. An 8½ in. cross compound compressor is used. Among the specialties applied are Pyle National headlight, Commonwealth locomotive cradle and Delta trailing truck, Raggonet power reverse, and Barco flexible joints.



Elevation of Pennsylvania Lines West 2-10-2 Type Locomotive

The principal dimensions and ratios of the locomotives are as follows:

General Data

Gage	4 ft. 8½ in.
Service	Freight
Fuel	Bit. coal
Tractive effort	80,942 lb.
Weight in working order	435,400 lb.
Weight on drivers	351,300 lb.
Weight on leading truck	23,100 lb.
Weight on trailing truck	61,000 lb.
Weight of engine and tender in working order	642,400 lb.
Wheel base, driving	22 ft. 2 in.
Wheel base, total	41 ft. 11½ in.
Wheel base, engine and tender	82 ft. 7¼ in.

Ratios

Weight on drivers ÷ tractive effort	4.34
Total weight ÷ tractive effort	5.38
Tractive effort × diam. drivers ÷ equivalent heating surface*	701.67
Equivalent heating surface* ÷ grate area	89.4
Firebox heating surface ÷ equivalent heating surface,* per cent	5.21
Weight on drivers ÷ equivalent heating surface*	49.1
Total weight ÷ equivalent heating surface*	60.9
Volume both cylinders	26.18 cu. ft.
Equivalent heating surface* ÷ vol. cylinders	273.1
Grate area ÷ vol. cylinders	3.06

Cylinders

Kind	Simple
Diameter and stroke	30 in. by 32 in.

Valves

Kind	Piston
Diameter	14 in.
Greatest travel	8¼ in.
Outside lap	1⅛ in.
Inside clearance	⅛ in.
Lead in full gear	¼ in.

Wheels

Driving, diameter over tires	62 in.
Driving, thickness of tires	3½ in.
Driving journals, main, diameter and length	12½ in. by 15 in.
Driving journals, others, diameter and length	11 in. by 15 in.
Engine truck wheels, diameter	33 in.
Engine truck, journals	6½ in by 12 in.
Trailing truck wheels, diameter	36 in.
Trailing truck, journals	7½ in. by 13⅜ in.

Boiler

Style	Conical Belpaire firebox
Working pressure	†205 lb. per sq. in.
Outside diameter of first ring	90¼ in.
Firebox, length and width	80 in. by 144 in.
Firebox plates, thickness— Back and sides ⅜ in., crown 7/16 in., throat ½ in., tube 9/16 in.	
Firebox, water space	6 in.
Tubes, number and outside diameter	196, 2¼ in.
Flues, number and outside diameter	54, 5½ in.
Tubes and flues, length	20 ft. 10¾ in.
Heating surface, tubes and flues	4,302 sq. ft.
Heating surface, firebox, including arch tubes	423 sq. ft.
Heating surface, total	4,725 sq. ft
Superheater heating surface	1,618 sq. ft.
Equivalent heating surface*	7,152 sq. ft.
Grate area	80 sq. ft.
Center of boiler above rail	10 ft. 1¼ in.

Tender

Tank	Rectangular water bottom
Frame	Cast steel
Weight	207,000 lb.
Wheels, diameter	33 in.
Journals, diameter and length	6 in. by 11 in.
Water capacity	10,000 gal.
Coal capacity	20 tons

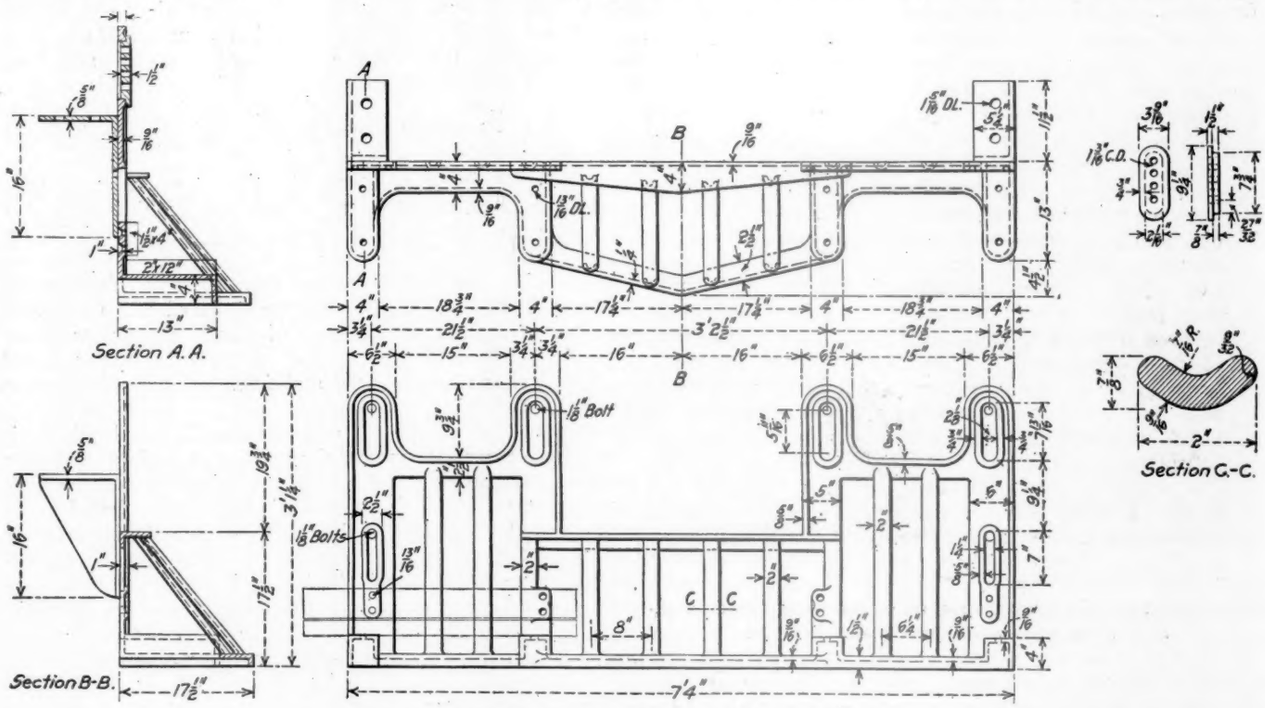
*Equivalent heating surface = total evaporative heating surface + 1.5 times the superheating surface.

†Designed to carry 250 lb. per sq. in. pressure.

Report on Marshfield Collision

THE INTERSTATE COMMERCE COMMISSION has issued a report, dated November 27, and signed by W. P. Borland, chief of the Bureau of Safety, on the butting collision which occurred on the St. Louis-San Francisco near Marshfield, Mo., on September 17, resulting in the death of twelve passengers and three employees, and the injury of 35 passengers and five employees. Eastbound extra train No. 1260 carrying troops, collided with a westbound freight train, second No. 39. Responsibility for the collision rests on the train despatcher, and the engineman of No. 1260. The despatcher issued an order giving the troop train the right to the road, but did not send a copy to the freight train. He asserted that he transmitted a copy by telephone to the operator at Conway, at 6:08 p. m.; but this operator showed that he was out of the office at that time, and he produced corroborative testimony from a man who had accompanied the operator from his house to the station, after supper, about 6:20 p. m. The engineman of the troop train asserted that automatic block signal 2126 was clear for him, but evidence of other witnesses satisfied the inspector that it was in the stop position.

The despatcher had been in the service of this road only 25 days, but is said to have had several years' experience as an operator on other roads. The engineman had been a fireman since 1905 and an engineman since February, 1918.



Cast Steel Pilot for Both Road and Yard Service

American Locomotives Needed for Chinese Railways

By Charles Denby

Special Assistant to Department of State, in Millard's Review

ONE OF THE URGENT NEEDS of China today is locomotives. The demands upon the railways have far exceeded the expectations of the builders. The locomotives bought in the first instance have proved too small, and it is now clearly realized by the technical advisers of China that they must standardize upon a type that will meet their needs for a long time to come. This question is being earnestly considered at the present time, and the problem arises for American consideration: Will the standardization be along the lines of American design or will it be made to conform to a European model to the detriment of American interests?

Of the 15 lines composing the system of Chinese Government railways only one was built by the Chinese themselves; it is financed by the Chinese government and is operated exclusively by Chinese. The funds for the construction and equipment of the various other railway lines of China were furnished by foreign capital of various nationalities, but not in a single instance has America so constructed and equipped

Photo courtesy Bureau of For. and Dom. Commerce

An American Built Locomotive on a Heavy Grade at Nankow Pass on the Peking-Kalgan-Suiyuan

any of these lines. As a result today the Continental (European) design of locomotive is predominant in China. On some of the lines, notably those under English and (hitherto) German influence, not a locomotive other than those built in accordance with the prevailing design common to the nation financing the railway was purchased or even considered, either for initial or subsequent equipment—at least up to the time of the outbreak of the war. Only in the case of the Chinese financed and operated railway have American builders been given a free hand, with the result that an American design was adopted and a thorough standardization of power effected on this line.

The latest statistics published by the Chinese Government railways (June 30, 1915) show that of a total of 6,600 kilometers (about 4,100 miles), including main and branch lines, industrial tracks, sidings, etc., the three principal trunk lines compose approximately 62 per cent of the total. One of these three lines is under English, one under Belgian and French and one under combined English and (hitherto) German influence. Out of a total of 638 locomotives in service on all lines at that time only 15½ per cent were of American design and manufacture, and on the English, Belgian and French lines mentioned, which operated at that time 365 locomotives, or approximately 60 per cent of the total, only 8, or approximately 2.2 per cent, were of American design and manufacture.

Since the outbreak of the war but few locomotives have been purchased and placed in service in China, owing principally, perhaps, to a lack of available funds and to internal disorders in the country. As a result of this and of the constantly increasing traffic, the railways are now urgently in need of power. As is often evidenced in the case of new roads, this particular instance of China shows that traffic has increased far beyond the estimates that were made when the initial equipment for power was under consideration, with the result that in addition to the natural depreciation and abandonment of locomotives on account of age, those left in service are light and not of adequate power for the most part to handle the traffic of today.

In 1917, 24 additional heavy locomotives were placed in service, and in 1918, up to the present, 2 more have been erected and 4 are under process of assembly for the Government lines. Orders have been placed or are about consummated for the further addition of 56 locomotives—all for the urgently needed heavier power. Of this number 38 are to be built strictly in accordance with American design and all are from American builders. In addition to this number there are 2 on order and 21 being considered for private lines; these locomotives are to be of American design and standards.

The question of the standardization of power and rolling stock is just now being most earnestly considered by the Chinese government, but a considerable time may elapse before this scheme becomes an assured fact. One American builder has for the past seven years been anticipating the coming of this event, and since the standardization of power on the Peking-Kalgan line every locomotive sold into China by this builder, whether for government or privately owned railways, has been designed and furnished with this end in view.

Pending the adoption of a standardized power by the Chinese government the greater the number of modern American design locomotives that can be furnished to the railways here the greater will be the opportunity to obtain the adoption of a strictly American design as the standard of power for China. The benefit of this to American interests is incalculable and should not be lost sight of.

Automobile Trucks in Iowa

The Highways Transport Committee of the State Council of National Defense, of the state of Iowa, reports that motor trucks are extensively used on the highways of that state in hauling livestock. In a report prepared for the purpose of showing the importance of having an extensive system of concrete highways in that state it is said that the livestock hauled to packing houses in Iowa—period of time not stated—has aggregated 225,600 head of hogs; 23,408 head of cattle, and 61,402 sheep. It is estimated that this amounts to 35,003 truck-loads, hauled an average distance of 35 miles; and that 6,250 railroad freight cars have thus been made available for other service. A considerable part of this livestock movement has been carried out by trucking companies which take freight and express from the cities to small-town merchants, and carry the livestock on the return trip. There are 61 such trucking companies. There are also in the state 187 trucks running on regular advertised schedules, hauling merchandise and farm products, but not taking part in the livestock traffic.

Government Ownership From a British Point of View

Nationalization Stifles Initiative, Adds to Administrative Costs and Discourages Inventiveness

From Engineering (London), December 13, 1918

THE ANNOUNCEMENT made last week by Mr. Churchill that the government had decided on the nationalization of the railways, renders it incumbent on engineers to exert such influence as they possess to prevent a repetition of the mistakes which have occurred on previous occasions when services hitherto administered by private companies have been taken over by the public. It unfortunately happens in the present instance that the possible advantages of nationalization lie on the surface, and are obvious to the meanest capacity, but it is all important for the future of the transportation problem that this "meanest capacity" shall not have the determining voice in the establishment of the new order of affairs. The dangers to be feared as a result of the suggested action are less patent, and are less likely to be generally appreciated, having relation to mind rather than to matter.

Orators have been eloquent in depicting public companies as caring for dividends merely, and nothing for the public. Nevertheless, in actual practice it has been the Post Office, and not the railway officials, which by their neglect and indifference have continued to provide themes for the pen and pencil of our modern satirists. The supercilious young lady who is occasionally found behind the counter of our postoffices, has had no counterpart in our railway services.

Practice Disproves Theory

How is it that in this country every great service taken over by the public from private companies has failed to realize the anticipations of the advocates of the change? The telegraphs were purchased with assurances of the most prosperous and profitable future. But few years had elapsed, however, before it had to be admitted that these forecasts had been wholly falsified, and that the service was being run at a loss, although the companies, hampered by restrictions from which the nationalized undertaking was free, had been nevertheless worked at a profit. Much the same has happened with the telephones, and it has not been without interest to observe during the past few days in one column of a journal, violent complaints of the inefficiency of the nationalized telephone service, and in another column rosy anticipations of the economies and improvements to be effected by the nationalization of our railways. Still a third instance of how far realization has fallen short of anticipation is afforded by the Metropolitan Water Board.

The telephones, of course, were acquired at considerably below a fair valuation. No credit was given for the imponderables which, as we pointed out last week, often constitute so large a proportion of the value of a growing concern. Mere materials were alone assessed, and no allowance made for the capital necessarily expended in pioneering work and in building up the organization. In America materialism is less rampant than here, and the Interstate Commerce Commission has definitely laid it down that expenditure, even on an experiment or enterprise would prove unsuccessful, may be fairly taken into account in valuing an undertaking. If progress is to be made, novel schemes and devices must be adventured on, and of these a certain proportion are sure to prove failures; yet their cost remains, notwithstanding, a fair charge on the enterprise.

In the case of the Metropolitan Water Board, it has been freely asserted that the price paid was excessive, but, as a matter of fact, the value of the mains alone was nearly equal to the full amount paid. To lay these mains in open country would have cost, under the most favorable conditions, not less than £10,000,000 (about $50,000,000) and the cost of main laying in towns is, as is well known, at least three or four times as much. Hence, the value of the mains alone was nearly equivalent to the full purchase price. To repeat our question, how is it that, in all these several cases, there has been such a wide discrepancy between promise and performance?

Administrative Charges Higher Under Public Control

Undoubtedly the main reason lies in the difference in the organization. The administrative charges tend to be much higher under the public than under the private control. This is, no doubt, contrary to anticipation, and some would assert, contrary to reason. Reason, however, is of itself but an indifferent guide to truth, and the late W. B. Bryan, chief engineer to the board, has stated that the administrative cost of the London Water Board exceeded the aggregate administrative costs of the eight companies which it replaced. According to a recent statement by Harold Cox, a similar result has followed the nationalization of the Swiss railways. He says that the administrative staff is larger than that of the five companies which were absorbed. The real cause of the inefficiency of the public services seems to lie in the fact that these increased administrative charges are all due to an increase in the clerical and statistical staffs, and to a reduction in the departments responsible for creative thought.

An interesting light on this matter is shown by a study of the terms on which the staff of the telephone company was taken over in 1911. Here the rule was laid down that any company official who, by showing initiative and imagination in the company's service, had secured a salary of over £700 (about $3,500) per annum, was, ipso facto (save in special cases), disqualified for the government service So far from "men of push and go" being required, it was to a large extent the men of "push" who had to "go."

Initiative Stifled in Government Undertakings

In fact, the whole system of organization was changed. As described by a district superintendent a couple of years after the transfer, all initiative and independence of judgment was suppressed. He knew, he said, exactly where certain matters were going wrong, and how they could be remedied, but if he made any move whatever he would be straightway informed "that the matter did not concern his department." Again, small difficulties which, under the company's management, would be settled locally out of hand, had, under the new regime, to be referred to headquarters. The original memorandum received additions at each step of its stately progress from official to official up to the one man who alone had power to settle the affair, trivial though it might be. In many cases, moreover, the memorandum on reaching this official was returned along the same devious path for further data, and had again to retrace its steps to the departmental head before a final decision was taken. The net result was that, instead of the one man who understood the whole of the local conditions settling the matter in half an hour, hosts of officials had all to spend time on it, and weeks might elapse before the final settlement. Obviously, any such system as this must necessarily find em-

ployment for a vast army of clerks, so it is easy to see how the administrative costs are increased.

Executives Swamped with Trifles

The evil of such a system does not end here, one of its consequences being that the head of the department, who ought to have ample leisure for the consideration of important matters of policy, has practically his whole time taken up with trivialities which, in any efficient organization, would have never reached him. In this connection, it may be noted that on certain of the great American railways, it has been the custom to relieve the vice-president of all routine work, so that he and his immediate staff may give the whole of their time to the consideration of new proposals for increasing the effectiveness of the service. In the public services there is nothing analogous to this, and, indeed, the powers even of the heads of departments are often extraordinarily, and indeed ludicrously, restricted.

To sum up, the traditional organization of our public services has been to discourage initiative and independent judgment on the part of subordinates, and greatly to restrict responsible action in the case of heads of departments. As one result, we have not in any public service *"la carriere ouverte aux talents."* Able young men, who later on should fill the higher administrative posts, get no opportunity as subordinates for the display of any but humdrum qualities, and are thus not sorted out from the general average. As one result, men competent to supervise the many new undertakings which had to be extemporized during the past five years, were found almost anywhere save in the civil services. Indeed, not the least debt of the nation to the railway companies is due to their work during the past years revealing the abilities of the numerous men which the state borrowed to control so many of our war services.

If the question of the nationalization of our railways is to come up for discussion, it is perhaps as well that it should come now, while the memory of this contrast between the results of company organization and public services organization is fresh in the public mind. It should make it easier to resist the attempt to establish a new organization molded on traditional lines, which all experience shows to have proved singularly unsatisfactory.

Nationalization Unsuited to a Democracy

No doubt the German state railways were managed with fair efficiency, even if the staff was mainly parasitic on English or American thought, but an organization which may be effective in an autocratic country is unsuited to a democratic one. Commenting on this point some 18 months ago we observed that while the best public service in a democratic country had never, in the whole course of history, been as good as the best in an autocratic country, yet, nevertheless, there was reason to believe that the worst in a democratic country had never been quite so bad as the worst in an autocracy. Whether this view can still be maintained depends very much on whether the Bolshevist regime in Russia is to be regarded as autocratic or democratic. Our own view is in favor of the first alternative, but some of the most fervent of those who claim to be the apostles of democracy in this country seem ardent advocates of the contrary opinion.

Standardization Versus Invention

Among the advantages claimed for the nationalization of an industry is that the reserve of stores will be greatly reduced by the greater standardization which becomes possible.

The theoretical benefit of such a change is obvious, but experience shows that it may, on occasion, be purchased somewhat dearly. In the case of the telegraphs, the extensive standardization of instruments effected on taking over these undertakings from the companies, destroyed competing centers of thought, and the result was, to a large extent, stagnation. A leading American authority has stated that up till 1870 more than one-half of the important improvements effected in telegraphy originated in Britain, but that subsequently the Postoffice simply imported improvements ready-made from abroad. On the other hand, we continued as before to make the most important contribution to improvements in submarine telegraphy, which remained under private direction and control. An instructive example of the difference between public and private action in this regard is afforded by the history of long-distance telephony. The principle now in use originated as is well known with Oliver Heaviside, but our postal authorities refused to help him to practicalize his ideas. Some abortive experiments were made, it is true, but not under his direction or control, and the scheme was reported to be a failure. Some years later Mr. Heaviside's idea was taken up in America and most ably worked out by Professor Pupin, who in contrast to Mr. Heaviside received the most generous support and reward from the Western Union Telegraph Company, with the result that all difficulties were overcome and the scheme made a practical success. Pupinized cables have, moreover, solved the difficulties of submarine telephony. It will be noted that there are many more systems of state telephones than company-controlled systems, yet this great advance was secured by a company and not by a state service.

The sole chance of maintaining the efficiency of our railway services under state control would be that the essential features of the present organization should not be materially changed. Of course, the ill effects of a change would not be experienced at once any more than they were in the case of the Metropolitan Water Board. In fact, a few years after the transfer the chairman of that board made a grandiloquent speech, in which he enumerated the many improvements which he claimed were due to the board; all these, he said, had been made "without one penny cost to the public." As a matter of fact, up to that date the board was, to all intents and purposes, living on accumulated capital. Every work, whether completed or commenced up to that date, was, in fact, a company scheme worked out before the drastic reduction in the engineering staff. Later on, when really new works had to be undertaken, the weak spot became evident. The staff was inadequate and the few creative minds retained were overloaded with routine.

Nationalization Means Loss of Creative Minds

With the transfer of the railways to the public, there will, undoubtedly, be a strong movement to reduce very largely the higher technical posts. Under mistaken ideas as to the all-importance of abolishing overlapping, independent centers of thought may be suppressed, with the result that our railways may become purely parasitic for ideas on company managed lines in other countries. It is of first importance that this tendency should be resisted, though even if former precedents be followed, the evil effects would not appear at the outset, any more than they did in the case of the Metropolitan Water Board. The best of the old officials—or some of them—would, no doubt, be retained, but if all initiative in subordinates is to be discouraged in accordance with the past traditions of our national services it will be impossible, as the present leading men die off or are superannuated, to replace them with men of equal caliber.

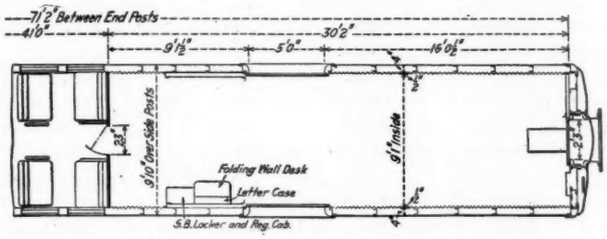
An investigation by the Interstate Commerce Commission of present methods of purchasing railroad ties, car material and crossing planks, and of the possibility of using substitutes for wood ties is proposed in a bill introduced in Congress by Representative Dyer, of Missouri.

Standard Passenger Car Equipment

THE COMMITTEE ON STANDARDS for Locomotives and Cars of the Railroad Administration has approved the general arrangements for the passenger; passenger and baggage; passenger, baggage and mail, and passenger and mail cars, the floor plans of which are shown in the illustrations. No other drawings, nor the specifications have been drawn for this equipment because of the uncertainty as to whether any of these cars will be built. All the cars are 70 ft. in length and are of the same general design. The illustrations show the complete floor plan of the passenger car and half plans of the other cars, as the passenger end of all cars is the same. The designs for these cars will follow in a very general way that of the 70-ft. baggage car, which was published in the *Railway Age* of September 27, 1918, page 585.

The following is a list of the specialties recommended by the committee for the standard passenger carrying cars:

Inside finish: Water and fireproof, ¼ in. mahogany window sills. Three star Agasote below wooden window sill and steel above.



Half Floor Arrangement of U. S. R. A. Passenger and Baggage Car.

Ceiling: Upper deck water and fireproof—three star Agasote ¼ in. thick. Lower deck water and fireproof—Agasote 3/16 in. thick. Deck to be painted with slush paint. Ceiling to be painted light color enamel of approved shade.

Ceiling decoration: Single plain sap green color line on lower and upper deck. Line only varnished over to hold decoration.

Window sash: Brass sash complete with fixtures as shown on Baltimore & Ohio blueprint No. 10,745. All windows to be double sashed except toilet room windows. Sash to raise 18 in.

Deck panels: All swinging deck panels to be equipped with T. U. Company's Eclipse ratchet. No deck sash to be used, swinging panels only at ventilators.

Window glass: American polished plate 3/16 in. thick, except in saloons and lavatories, which are to be equipped with pressed prism design 0-1, with smooth surface outside.

Door glass: American polished plate ¼ in. thick.

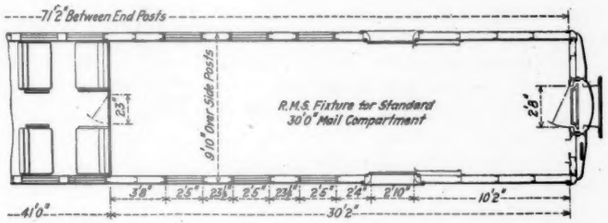
Window shades: Railway standard mercerized on inside, pantasote on outside. Width of curtain goods in windows not more than ¼ in. less than distance between window casing. Color of shade to be selected.

Heating system: Chicago Car Heating Company's vapor system to be guaranteed by manufacturers to register an inside temperature of 70 deg. when the outside temperature is 20 deg. below zero. Holes through center sills for train line sufficiently large to prevent chafing of pipe due to expansion or contraction. Piping so applied as to give ample clearance between all body and truck parts when cars are rounding 170 ft. radius curve. Same to include extra heavy pipe for train line.

Steam hose and couplings: Steam hose to be 1⅝ in. by 24 in. Couplings to be of the S-4 type.

Steam pipe: Train pipe 2 in. wrought iron. Pipe and fittings extra heavy. Piping inside of car 1½ in. standard pipe.

Foot rests or guards: Pullman type, perforated steel.

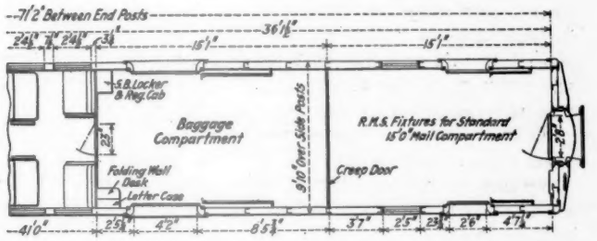


Half Floor Plan of U. S. R. A. Passenger and Mail Car

Wrecking tools and cases: Steel box fitted with No. 6 sledge, axe, saw, fire bucket, hack saw, six hack saw blades, cold chisel and steel bar, located to comply with state laws.

Hardware: To be of the Pullman type.

Floor covering: Floor covering to be of plastic material, thickness to meet linoleum ⅝ in. to the top of chanarch, and then an aisle strip of green or red linoleum laid so that the top will be on the level with the inlay and of suitable color to harmonize with the interior finish of the car, chanarch to be 22 B.W.G. gage galvanized. Brass strips to be placed on either side of the linoleum as shown on Baltimore & Ohio blueprint No. 31,189.



Half-Floor Arrangement of U. S. R. A. Passenger, Baggage and Mail Car

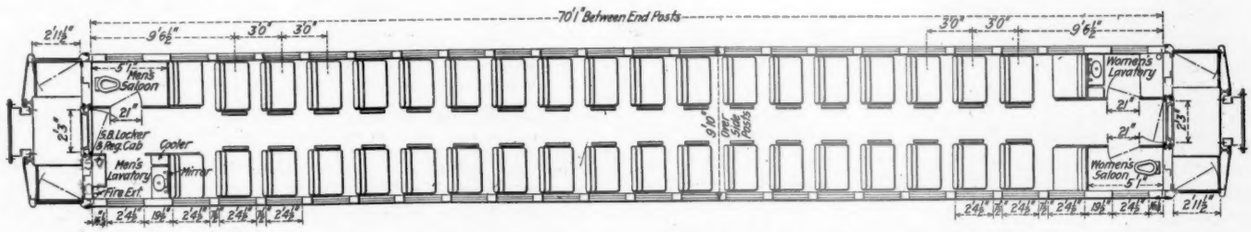
Equipment: One deck sash opener. One step box (Dunbar.)

Basket racks: Three-section continuous type.

Coat and hat hooks: In saloons and lavatories.

Check holder: Fitch.

Platform and end of car: Cast steel integral with body bolster as manufactured by Commonwealth Steel Company, or built-up type of approved design.



Floor Arrangement of the U. S. R. A. Standard 70-ft. Passenger Car

Shade fixtures: Rex, all-metal shade roller. Curtain Supply Company, ring type No. 88.

Shade rolls: Rex, all-metal shade roll.

Seats: Hale & Kilburn, walk-over type, high back, with head rest, steel ends, wooden arm rests, No. 197, or its equivalent.

Seat covers: Seat covering to be selected later.

Ventilation: Clere story deck, eight per car. Utilities ventilator 100 per cent, Peerless 90 per cent, Garland-Honeycomb 75 per cent.

Water coolers: White metal, North Pole sanitary drinking fountains with filter attachment, arranged suitably to design of car.

Wash stands: White metal. Plumbing under wash stands to be open with nickel fittings. Wash stands fitted with Adams & Westlake throw-over lever type of faucets and drain fixtures of Pullman standard.

Water supply: Pullman standard air pressure water system. Galvanized steel piping. Cold water only. Metal tank box insulated.

Gates: Each car to be equipped with safety gates, Pullman type, and permanently attached at each end of car.

Steps: Steps to be of steel with metal safety treads of abrasive material and have no nosing.

Draft gear: Miner friction class 5-A-P.

Buffer device: Miner friction, Class B-10, or equivalent.

Diaphragm upper buffer: Fowler upper buffer spring.

Vestibule: Wide type Pullman standard, with Imperial wide face plate.

End doors: Mahogany with finger guards.

Diaphragms: To be of steel. First choice Dunbar, Style C. Second choice, Pullman. Third choice, Rex.

Vestibule curtains: Pullman, first choice; Acme Automatic, second choice.

Vestibule shield: Pullman or Acme revolving type.

Vestibule curtain, hook and handle: Rex, first choice; Robertson Safety, second choice.

Vestibule trimming: Enameled body color.
Vestibule grab handle: All handholds, grabs, to be smooth wrought iron, ¾ in.
Trap doors and lifting device: First choice to be T. U. Company's National high station platform type, arranged to open up after and outside of vestibule doors. Second choice, Edwards, and third choice, Pullman.
Air brakes: The Universal, common standard, high-speed automatic brake equipment, schedule UC-1-18, shall be used without electric features and with type K-1 automatic slack adjuster placed on brake cylinder. J. M. expander ring. Ten pound spring type retaining valve and one conductor valve.
The air brake shall develop a nominal brake power of 90 per cent of the complete light weight of the car with 60 lb. cylinder pressure, and be capable of 150 per cent braking power in emergency.
All parts of truck and foundation brake gear to withstand stresses in accordance with M.C.B. standards; 1¼ in. extra heavy brake pipe to be used. All pipe fittings except those regularly included in the air brake schedule shall be "Extra quality individually tested pipe fittings for railroad air brake service." All air pipe to be blown out before pipe is assembled.
Hand brakes: Miner or Western Railway Equipment, or Lindstrom improved.
Braking and signal cord: Signal cord, ¾ in. steel cord, braided green. Conductor's cord, ¼ in. steel cord, braided red, both applied along center of car upper deck supported.
Painting: U. S. Standard.
Roof: Steel. To be of material which has been thoroughly sand blasted, painted and sanded on the outside.
Trucks: Cast steel.
Truck wheel base: 11 ft.
Center plates and center pins: Cast steel separable, arranged for application to cone bolster locking center pin.
Side bearings: Frictionless rolled side bearings for six-wheel passenger trucks. Miner first choice, Perry second choice, Woods third choice.
Equalizers: Wrought iron.
Wheels: 36 in. rolled or forged steel.
Pedestals: Cast steel.
Journal boxes: National Malleable Castings Company's pedestal type complete with lids for axles with 5 in. by 9 in. journals.
Journal bearing keys: To be drop forged M.C.B. dimensions suitable for axles with 5 in. by 9 in. journals.
Brake shoe: Diamond *S*.
Floor insulation: To be 1 in. quilted hair felt with paper on both sides.
Insulation, super-structure: Body insulation to be ¾ in. quilted hair felt with paper on both sides applied to inner surface of the side walls and end sheets.
Saloon hoppers: Dayton Company's Eckert No. 8 with porcelain hopper chute as manufactured by Dayton Manufacturing Company, or Pullman Standard (Duner). Hopper in women's lavatory to have double lid and men's lavatory to have single seat with horseshoe opening. Toilet paper holder, Pullman type, to be applied in each saloon.
Designating signs: Pullman style, to show location of each toilet, one illuminated sign to read "Men" in end of car where men's toilet is located. Sign to be placed inside of car on bulkhead. Same method to be used at ladies' end and sign to read "Women."

Orders of Regional Directors

INSURANCE COVERING PASSENGER AND FREIGHT ELEVATORS. Eastern regional director, file 1800-113A418. Same as orders noted on page 206 of *Railway Age,* January 17.

Employees Accepting Positions on Other Railroads at Higher Salaries.—Eastern regional director's file 1200-4-63A412, similar to Southwestern regional director's Order 148. See *Railway Age,* January 17, page 205.

Back Pay to be Included in December Operating Expenses.—The eastern regional director, file 401-7A419, orders that there be included in operating expenses for the month of December, 1918, any amounts of back pay provided for by General Order 27, or supplements thereof, which have not been included in operating expenses prior to that month. If pay rolls have not been prepared as accurate an estimate as possible should be made and included in December expenses.

Endorsements on Administration Passes.—The Eastern regional director, file 2100-29A432, states that it is understood that rubber stamp endorsements are being placed on Administration passes. There has been no authority for this and no endorsements or changes should be made on these passes without first securing the approval of the Director of Operation.

Writing Material on Club Cars.—The Eastern regional director, file 1600-83A433, requests that on such club cars, buffet-library cars, observation cars, etc., as are now in operation or may be restored in the future, a reasonable supply of writing material, together with pens and ink, be provided without charge to the public.

Food Conservation Posters in Passenger Cars.—The Eastern regional director, file 1500-80-1A429, states that on account of the necessity for exporting food to Europe, the Food Administration prefers to have its posters remain in passenger cars for the present.

Discontinue Picking Up of Stored Coal.—The Eastern regional director, file 301-3A426, advises that picking up of stored coal shall be discontinued immediately, except in cases of emergency.

Location of Air Pumps on Locomotives.—The Eastern regional director, file 500-73A424, states that when air pumps are applied to locomotives, care should be taken that they are so placed as not to obstruct the vision of men on the locomotives; as locomotives receive Class 1, 2 or 3 repairs the pumps should be properly located.

Transportation of Corporation Officers and Employes.—Supplement 9 to Order 109 of Southwestern regional director, similar to Supplement 14 to Circular 29 of Central Western regional director, abstract of which was published in the *Railway Age,* January 10, page 159.

Fire and Casualty Insurance on Construction Work.—The Eastern regional director, file 401-5A430, quotes from a letter received from Theodore H. Price, actuary to the Railroad Administration, as follows:

"I am writing to inform you that after careful consideration the Honorable John Barton Payne, general counsel to the Railroad Administration, has decided that inasmuch as the cost of fire and casualty insurance on construction work that is chargeable to capital account is properly to be considered as part of the cost of such work, such insurance should be provided in accordance with the practice of the railroads prior to governmental control. The premiums paid therefor are to be included in the accounting made and accepted for work of this character."

Disregard of Shippers' Routes.—The Eastern regional director, file 600-4-102A438, states that the Food Administration Grain Corporation complains that some railroads are not protecting the lowest rates on shipments which they forward un-routed, and which the railroads for efficiency reasons send via a route over which a higher rate applies, but in such cases are collecting the higher rate, and insisting that it will be necessary for the Grain Corporation to file reparation claims for refund. This is not in accordance with instructions of the regional director, file 3000-124, on the subject of Disregard of Shippers' Route, Article 4, of which reads as follows:

4. When traffic is forwarded by the railroads for efficiency reasons via a route to which a higher rate applies than over the route specified by shipper, the rate via shippers' route must not be exceeded as a charge for the movement over the substituted route.

Elimination of Sunday and Holiday Work.—The Eastern regional director, file 1200-2-29A420, reproduces a letter from the Director of Operations which is self-explanatory:

"If you have not already done so, won't you please immediately arrange for a thorough investigation and study to be made on the roads in your region with respect to the elimination of Sunday and holiday work, in order to carry out the desire of the director general as expressed in Supplement No. 13 to General Order No. 27.
"In order that the director general may know what progress is being made, and that his wishes in the matter are being fully met, I believe it advisable that you have your federal managers make reports from time to time indicating to what extent they have found it possible to either wholly eliminate or reduce to the minimum Sunday or holiday work."

Interest During Construction.—The Eastern regional director, file 2700A417 refers to file 2700A409, (*Railway Age,* January 17, page 205), regarding interest on construction expenditures and rates of depreciation accruals. That portion referring to depreciation on equipment coming into service subsequent to December 31, 1917, should be corrected to read as follows:

"Also arrange for accruing depreciation at the rate of 4½ per cent per annum on the book value or original cost of all equipment first placed in service subsequent to December 31, 1917, including equipment assigned by the United States Railroad Administration."

Director General's Name on Stationery.—The Eastern regional director, file 1500-1-3-8A431, orders that Director General Hines' name appear in place of Mr. McAdoo's on

any stationery which may be ordered in the future; correct by rubber stamp or other suitable means, such stationery as may be on hand, by substituting Director General Hines' name (Walker D. Hines) for that of Mr. McAdoo. It will not be necessary, however, to change any existing supply of tickets or tariffs.

Rental Charge on Locomotives.—In Order 150 the Southwestern regional director announces that the rate for the rental of locomotives to industries and small lines has been set at one-tenth cent per pound of tractive power per day with a minimum of $30 per day, and that this rate of rental will apply in all cases of locomotives loaned to any such industries or small lines. Any engines rented which are covered by a contract entered into prior to the date of Order 126 of the Southwestern regional director, shall continue at the same rate of rental as provided in such an agreement.

The Master Boilermakers' Association.—The Eastern regional director, file 102-1-9A435, states that the Master Boilermakers' Association will hold its convention at the Hotel Sherman, Chicago, Illinois, May 26, 27, 28 and 29, 1919. As this organization has been recognized and encouraged by the railroads on account of its educational value, approval has been given for the holding of the convention. Please arrange for master boilermakers, boiler shop foremen, general boiler inspectors and others employed in a similar capacity to attend, as far as they can be spared without detriment to the service. Each road should follow its usual practice with respect to allowance of time and expenses and furnishing transportation for men who may properly be permitted to attend this convention.

Assessments for Current Expenses of Associations.—In Supplement 3 to Circular 136 the Southwestern regional director announces that no individual railroad under federal control should maintain and pay for more than four memberships in any one traffic club. He asks that statements be prepared showing the number of memberships which each road has in traffic clubs, giving the full name of each organization and its location. In case it is desired to take out additional memberships in traffic clubs where the number is less than the maximum of four, the approval of the regional director should be obtained.

Railway Storekeepers' Association.—The Eastern regional director, file 1500-11A413, quotes a letter received from H. B. Spencer, chairman, Central Advisory Purchasing Committee, as follows:

"A meeting of the Railway Storekeepers' Association will be held at the Hotel Sherman, Chicago, Ill., on January 27, 28 and 29, 1919. The status of the association has been approved by the director general, and this is the first meeting which has been held since the railroads were taken under federal control. In view of the important economies which it is confidently expected to effect through the re-organization of the stores department which has been undertaken, and the desirability of having all of those who are charged with the duty of procuring, handling and distributing the material obtain the benefit of personal discussion of the many questions involved, we would appreciate it if you will request your federal managers to arrange to have as many of their purchasing and stores department officers as possible in attendance at this meeting. It is believed that this will greatly assist in the introduction of uniform practices, which it is the desire to establish as speedily as possible."

Passes for General Chairmen of Committees of Employees' Organizations.—The Eastern regional director, file 2100-13A415, states that it has been decided that it will be the policy of the Railroad Administration to issue annual railroad transportation to the general chairmen of committees of employees' organizations, where the application is properly made and it can be shown that such chairman actually represents the class of employees he claims to represent. This will include also the granting of the necessary leave of absense in the usual manner during the incumbency of such chairman to enable him to carry on the business of his Association. It will be proper to honor requests of this character where annual transportation over the home road only is desired. Requests for off-line transportation should be forwarded to the Director of Operation.

Railroad Business Mail.—In Order 151 the Southwestern regional director announces that federal-controlled roads may carry as railroad business mail, without payment of postage, mail which relates to the business of other railroads under federal control, which is sent by and addressed to officers or employees of controlled lines. This mail should be handled with care, and if particular routing is indicated on the envelope it should be strictly observed. Only mail of special importance should be registered.

Handling Labor Matters with Adjustment Boards.—In Circular 69 the Northwestern regional director calls attention to paragraph 10 of the director-general's Orders 13, 29 and 53 which require certification of the chief operating officers of the railroads to all cases referred to the Boards of Adjustment Nos. 1, 2 and 3. The regional director states that the federal manager or general manager, when there is no federal manager, is the chief operating officer so far as concerns matters referred to boards of adjustment. However, the federal manager may delegate to his general manager or general managers, as he may consider advisable authority to certify such cases to these boards. When he does so, however, he must file with the Division of Labor the names of the officers to whom such authority has been delegated.

Standard Form for Stationery.—In Supplement 5 to Circular 6 the Northwestern regional director announces that it will not be necessary to discontinue the use of stationery containing the name of Mr. McAdoo as director general. Bills of lading and other printed forms will be valid and binding if executed by a duly authorized representative of the present director general, even though Mr. McAdoo's name should appear. It will, however, be proper to eliminate Mr. McAdoo's name from stocks of bills of lading and other contract forms of stationery on hand so as to leave the same reading: "United States Railroad Administration, Director General of Railroads, North & South Railroad." This should be done so far as reasonably practicable on all stationery on hand. This will apply to bills of lading (both bills furnished by the carriers and bills furnished by the shippers) but it is not to be construed as a positive requirement that all bills of lading accepted from shippers must have Mr. McAdoo's name eliminated therefrom. New stocks of all stationery, excepting time-tables, should employ the form: "United States Railroad Administration, Director General of Railroads, North and South Railroads." This will apply to bills of lading and other printed forms partaking of the nature of contracts, as well as to other stationery except time-tables. Working time-tables for employees should use the form "United States Railroad Administration, Walker D. Hines, Director General of Railroads, North & South Railroad." The Eastern regional director has issued a similar order, file 1500-1-3-8A441.

Care of Sick and Wounded Soldiers.—The Eastern regional director, file 1600-87A445, quotes George Hodges, Manager, Troop Movement Section, Washington, D. C., in regard to arrangements made by the war department for the care of sick and wounded soldiers at important transportation centers. As additional medical officers are assigned to this service, advice will be given to the railroads concerned.

"Surgeon general, War Department, has assigned medical officers to various important transportation centers, as Laiison Officers, in connection with transfer of sick and wounded soldiers.

"Co-operation of railroads is requested, and that office or desk space in main terminals be provided, advance information given, expected time arrival such trains, access thereto, information relative to breaking up trains at diverging points, advice relative to feeding arrangements, rendering every facility consistent and accepting helpful suggestions or assistance offered with a view to providing most satisfactory and comfortable handling of sick and wounded. Such officers have already been sent to Richmond, Baltimore, Washington, Salisbury, N. C.; Philadelphia, Chicago, Cincinnati and New York."

Continuation of Memberships, Assessments, Dues, etc.—The Eastern regional director, file 102A444, advises that

participation by carriers under federal control in the expense of memberships, assessments, dues, etc., in associations, organizations, etc., which were authorized for the year 1918, may be continued during the year 1919 on the same basis as heretofore authorized, such expense to be charged to operating expenses, provided if, in your opinion, any of these memberships, assessments, etc., should now be discontinued, that you bring the matter to my attention. As heretofore, proper authority should be secured from this office before expenses of this nature are assumed, where such authority was not extended in 1918.

Billing for Empty Tank Cars.—The Eastern regional director, file 2000-28A442, announces that the office in charge of F. W. Boltz, supervisor oil traffic, has been abolished and hereafter disposition for empty tank cars on hand without billing will be furnished by the owners as heretofore.

Railroad Hearings Before Senate Committee

Julius Kruttschnitt Compares Government and Private Operation of Roads—Mr. Thom's Argument

WASHINGTON, D. C.

ARGUMENTS BY ALFRED P. THOM, counsel for the Association of Railway Executives, and a comparison of the results obtained under the direction of the Railroads' War Board, presented by Julius Kruttschnitt, chairman of the Southern Pacific Company, constituted the testimony before the Senate Committee on Interstate Commerce during the past week. Mr. Kruttschnitt was to be followed by representatives of the brotherhoods of train service employees. It is understood that the House Committee on Interstate Commerce will soon begin a similar hearing on the question of the disposition of the railroads. Mr. Kruttschnitt's statement was as follows:

Inasmuch as the railroads under private management stand charged with having broken down and failed to render the public service expected of them, and with being in deplorable condition, lacking both in equipment and terminals, at the end of 1917, when they passed into the hands of the government, I desire to place information before the committee that will test the correctness of these assertions, and to present additional facts that will convince them, I hope, of the ability of the owners of the properties to serve far more efficiently than they have ever been able to do in the past, if afforded the reasonable assistance that Congress alone can give. Profiting by experience acquired under both private and government operation, the carriers earnestly desire to provide a better system of operation by combining the initiative and beneficial features of competition inherent in private ownership with the benefits developed during the operation by the government unhampered by legal restrictions.

In denying that private operation failed or broke down, I respectfully ask permission to show wherein it did neither the one nor the other, and how with a plant provided by private owners it gave service that has never been equalled in the history of transportation, and that with legislation permitting practices heretofore prohibited it can and will, by combining the good and eliminating the bad features of both federal and private operation, give a service better than any that has ever been given in the past.

It has been frequently stated that the railroads of the country were in a very bad condition on January 1, 1918, when they were taken over by the government. In a despatch from Washington in the New York Sun of December 20, the director general is quoted as saying that existing rates were instituted to pay "the heavy cost of reviving the roads from the paralysis that seized them when the government took control," and also "they were admittedly run down and huge sums were necessary to get them into efficient operation," and in his statement before the Senate committee he says, "There was inadequacy of terminal facilities." "In the fall of 1917, despite strenuous efforts, and yet under a larger degree of co-ordination than had ever before been attempted, to prevent such a situation, a paralysis of the transportation situation again occurred."

The Interstate Commerce Commission's report of December 1, 1916, was quoted to show how bad transportation conditions were in that year. As a result of unified private control the commission's condemnation of 1916 is changed to commendation one year later.

In its report of December 1, 1917, the Interstate Commerce Commission says: "Equipment has been taken from sections where it was less needed to other sections, where military and commercial needs required more equipment than there was available, and such stupendous movements as those of the cantonment construction material and the troop transfers have been made without seriously interfering with the commercial business of the country. While conditions have been extraordinary and while traffic has not always moved as carriers and shippers would have had it moved, the essential needs of the country have to date been cared for."

The difficulties that could neither be escaped nor neutralized were well understood at the time to be impending demands for increased wages to put railroad labor on a parity with labor in other industries, and the necessity for financial help required by many of the railroads. Indeed, these were the reasons that the President gave to the members of the Railroads' War Board in person a few days before he issued his proclamation.

The latest statistics of government operation available to us when this memorandum was prepared covered the nine months ending September 30, 1918. This period began on January 1, 1918, which marked the end of nine months of unified private control and management and the beginning of nine months of government management.

The percentage of freight cars in shop or awaiting shopping was the same in both years.

The percentage of freight locomotives in shop or awaiting shopping was 13.8 in 1917 and 14.9 in 1918.

The director general claims to have stored, ready for winter service, 1,189 locomotives, while one year ago there was not one in storage.

At the close of 1917 there remained undelivered 3,400 locomotives and 33,000 freight cars ordered by the carriers, many of which were for the Eastern trunk lines, on which freight congestion was most severe. This shortage was not unexpected, because shortly after the declaration of war we were informed that the Council of National Defense found it necessary to direct builders to give precedence to locomotives for Great Britain, France and Russia; whereupon the Railroads' War Board considered appealing to the council to take account of the needs of our own roads, but the conclusion was reached that agencies conducting the war should not be embarrassed with our troubles, which we determined to surmount as best we could. We believed this was proper in the circumstances, although, as expected, it produced a shortage of locomotives at the end of 1917. The accumulation of 1,189 locomotives represents the deliveries during 1918 on

carriers' orders and on those of the United States Railroad Administration for 1,400 locomotives, only 126 of which, however, had been delivered up to the first of November. Had the severe weather conditions of 1917 replaced the mild weather of 1918 this reserve would have been impossible.

The terminal facilities, main and other main tracks were substantially the same, as there were few additions made in the first nine months of government control.

As of September 30 only 92, or less than one-tenth of 1 per cent, of the 100,000 federal cars had been delivered, and but 126 of the federal locomotives; so that it may be said without substantial inaccuracy that whatever transportation service has been rendered by the federal Railroad Administration has been rendered with facilities provided by private foresight and management, with equipment—counting both locomotives and cars—in better physical condition at the end of nine months of private unified control than at the end of

From the New York Tribune

Not So Goldarned Easy As It Looked

nine months of government control, by continuing practices devised by the carriers and by supplementing them with others which the carriers long had desired to use but were restrained by law from so doing.

If, under these conditions, no greater traffic was handled in 1918 than in 1917, greater ability and efficiency for government administration can hardly be claimed.

The volume of freight traffic measured by tons of freight carried one mile in the nine-month periods was:

1917	330,486,760,286	1.3 per cent greater
1918	326,306,832,131	

and the maximum volume of freight traffic handled in any one month was:

May, 1917	39,273,449,624	1.3 per cent greater
July, 1918	38,761,290,750	

The sole items in which 1918 shows improvement over 1917 are in average tons of freight per car of 29 against 27.3, an increase of 6.2 per cent for the period; but for the month of December, 1917, at the end of nine months of private unified control, the average tons per car was 29.2 tons, and the corresponding figure for September, 1918, after nine months of government unified control, was but 29.7 tons.

The average train load in the two periods was 667 and 678 tons, respectively, an increase of 1.6 per cent, but as the increases in carload was 6.2 per cent a less number of loaded cars per train was hauled.

A press despatch in the New York Times of January 2, 1919, credits to the Railroad Administration an estimate of the operating expenses of 1918 at $3,800,000,000, or $1,000,000,000 more than 1917. This expenditure was made to increase efficiency; nevertheless roads that are alleged to have been run down at the end of nine months of unified private control show:

1. A larger volume of freight traffic handled in nine months under private than in the same period under government control.
2. The largest volume of freight traffic *ever handled in any one month.*
3. Loaded car mileage 7.5 per cent larger than under government control.
4. Greater number of loaded cars per train than under government control.
5. Miles run per locomotive per day 7.2 per cent higher than under government control.
6. Miles run per freight car per day 6.1 per cent higher than under government control.
7. The physical condition of freight locomotives better than under government control.
8. The condition of freight cars equally as good as under government control.

As weather conditions both at the end of 1917 and the beginning of 1918 were unusually severe, the comparison of the two nine-month periods is not unfair.

Whence it follows that increased efficiency under government control is, to say the least, not proven.

Reforms Which Should Be Continued Under Peace Conditions

Mr. Kruttschnitt discussed the list of reforms mentioned in Mr. McAdoo's testimony as follows:

1. The maintenance of the permit system so as to control the traffic at its source.

Unquestionably of great benefit in preventing congestion, but cannot be continued without government authority. Shippers would not submit to dictation of carriers under normal conditions. During the war patriotism controlled them.

2. The maintenance of heavy loads for cars.

The railroads under private management have for years devoted a great deal of attention to this feature and the carload was increased very largely during unified control in the last nine months of 1917, being 29.2 tons in the ninth month of private control compared with 29.7 tons in the ninth month of government control.

3. The pooling of repair shops.

This was done to some extent under private control, and has been continued under federal control.

4. The elimination of circuitous routes, i. e., competitive routes.

This is synonymous with the suppression of competition and is impracticable under private control without special statutory authority. A mere suggestion to do this in 1917 prompted an immediate inquiry by the attorney general as to what was contemplated. The benefit of this practice, which deprives the shipper of choice of routes and competitive facilities and service, is very much exaggerated; the director general says that during a year of federal control 16,863,633 car miles have been saved in the Eastern and Northwestern

regions alone, which is only two-tenths of 1 per cent of the total freight car miles run in these regions.

In recommending the elimination of circuitous routes the interests and convenience of the public served by them do not seem to have been considered. The great preponderance of traffic in our country is long-distance through traffic, competitive with other rail, or water, or part rail and part water routes. If, at its inception, any line projected to develop traffic, following a policy under which our country has been built up, had been prohibited from engaging in through traffic because it was longer than an existing line, it would never have been built, as it could not possibly have existed on the revenue solely derived from local traffic. In other words, it was able to develop and serve local communities by reason of supplementing local with through freight revenue.

If the circuitous route can make satisfactory earnings from the carriage of freight at regulated rates, why should it be denied the right of doing so? The ability to control such traffic evidences a public necessity, for obviously if such a route did not give better facilities and service than the direct route no one would use it, no matter how earnestly persuaded by agents of interested railroads.

The use of circuitous routes in emergencies is often imperative.

5. The unification of terminals.

Under private operation it is not clear that this could be done without infraction of law, but a great deal was done during the life of the Railroads' War Board in the way of extending the common use of terminals.

6. The maintenance of the "sailing day plan."

The general adoption of this plan by the Railroads' War Board followed a publication of its benefits by the Pennsylvania Railroad Company, in the autumn of 1917, the first large system to put it into general use. It is unquestionably beneficial and, as a war measure, the inconvenience of less frequent service was tolerated with great good-temper by the public.

7. The consolidation of ticket offices.

Unquestionably of benefit in places and should be continued with discrimination, if permissive statutory authority can be obtained. In the government suit for unmerging the Union and Southern Pacific Systems, a point to which the prosecuting officers of the government attached much importance as proving infractions of the anti-trust law, was consolidation of ticket offices. As a result of the litigation all consolidations of this character were broken up.

8. The utilization of universal mileage tickets.

Unquestionably a good thing and should be continued under private control and protective restrictions. Apparently no legal obstacles.

9. The standardization of equipment.

Standardization of locomotives is unwise and unnecessary. To obtain maximum efficiency of a locomotive and corresponding minimum of cost of transportation demands close study of the alinement and grade systems, the nature of fuel, strength of bridges, weight of rail, length of turntables, depth of roundhouses and lengths of freight passing sidings on the line on which they are to be operated. As these features are different for each line, no locomotive can be designed to serve all lines with maximum efficiency; hence, if a standard locomotive is to be prescribed for use on all lines a compromise is the only possible solution of the problem, and a jack-of-all-trades-master-of-none locomotive is the result. The owning line must put up with indifferent service in order that some other line may be able in emergencies to borrow a locomotive similar to its own in all respects. The owner must be satisfied with 80 or 90 per cent efficiency for substantially *all* the time in order that a borrower may enjoy similarly lowered efficiency for a very short time. The director general credits standardization with prompter deliveries of locomotives. May it not be due to priority given to material for federal locomotives? Some Southern Pacific locomotives are now 12 months overdue because of preference accorded federal locomotives, and the company itself is very much in arrears in completing locomotives which it is building in its shops because of delays in getting material.

The standardization of passenger equipment is not necessary, as it seldom leaves the rails of the owner.

Standardization of certain classes of freight cars is desirable, but should not be obtained at a sacrifice of transportation efficiency of the owning line by forcing it to use a car unsuitable for its traffic because of excessive deadweight, restricted cubic capacity, etc., etc. Most of the important details of cars have been standardized as a result of the studies of the Master Car Builders' and Master Mechanics' Associations.

Standardization, unless intrusted to officers immediately responsible for net revenue, will lead to the sacrifice of the substance of *certain* economy in operation to the shadow of *uncertain* economy in manufacturing costs.

10. The maintenance of the uniform freight classification introduced by the United States Railroad Administration.

Unquestionably of benefit and can and should be continued under private operation. This monumental work, on which the carriers had been engaged for several years, was completed just before federal control, and the government deserves credit for putting it in use immediately.

11. The maintenance of common timetables between important points.

The railroads have desired for many years to bring this about, but have been prevented by fear of violation of statutes.

12. The maintenance of high demurrage rates and uniform rules.

Desired for many years by the railroads and urgently recommended by the Railroads' War Board during its existence. The permission of the commission to increase demurrage rates was obtained, but its order was modified in a short time to such an extent as to deprive the carriers of its expected benefits.

13 and 14. The establishment of through waybilling freight from point of origin to destination, and rendering unnecessary the rebilling by connecting or intermediate routes.

Unquestionably of great benefit. If the practice means what the language implies it should break up to a large extent, if not entirely, the practice of reconsignment, which has been a most fruitful source of delay and congestion.

15. The elimination of the old practice of paying in mileage or per diem rental for the use of freight or passenger cars of one carrier by another.

This would be possible to a considerable extent by pooling certain classes of cars in general use, but not all of the freight cars of the country, a plan for which could no doubt be worked out with the authority of the Interstate Commerce Commission, which under the Esch bill is vested with control of the carriers' equipment. Carriers should be allowed to enjoy the exclusive use of special equipment designed to suit special conditions and produce minimum costs of transportation.

The necessity for pooling passenger cars does not exist, as in general their use is confined to the owning lines, without inconvenience to the public. When it is necessary they can and should be freely exchanged.

16. The simplification of the old practice of apportioning interline passenger revenue.

As we understand this language, the practice can be followed as well under private as under federal operation; however, it is a matter in which the public is not interested.

17. The utilization of water routes for the relief of crowded rail lines.

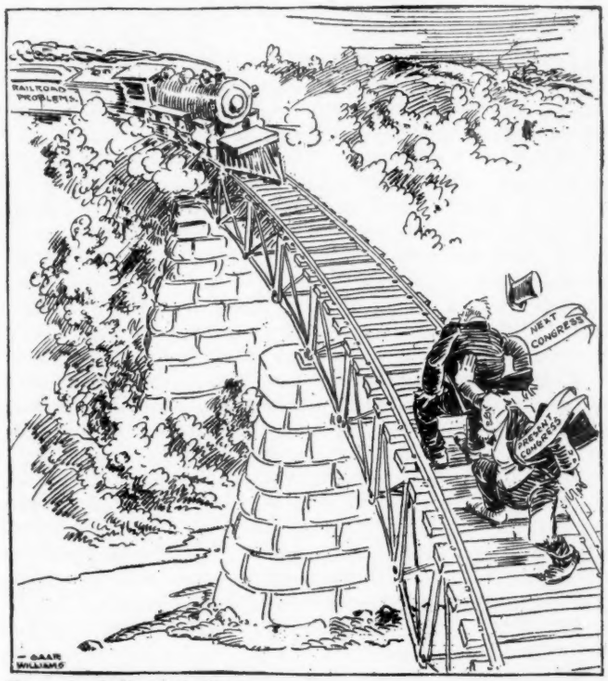
This should unquestionably be done, but past experience has shown that there is no equipment on the water routes to accommodate freight; therefore it is impossible for them to afford relief. Representatives of water-route interests were

met in conference by the Railroads' War Board on several occasions and assured of the co-operation of the carriers, but nothing ever resulted from these conferences because of lack of water-route equipment.

Economies

The director general asserts that reports from five of the seven regions show that on a group of selected principal items, savings totaling $85,576,424 have been effected in 1918. Estimating a pro rata saving for the other two regions would total $119,806,000.

For the first seven months of federal control 47,420,000



From the Indianapolis News.

You Do It

passenger miles were cancelled. Inasmuch as the director general says that the elimination of many passenger trains could hardly be expected to persist after the declaration of peace, we estimate the reduction for the entire year at 40 per cent more than that for seven months, making a total of 66,388,000.

The expense per train mile for 1917 was $2.30. The estimated increase in operating expenses of 1918 over 1917 is 34 per cent, which will raise the cost of a train mile to $3.08. From computations made on Southern Pacific in 1916 of the cost of a passenger train mile according to a rule prescribed by the Interstate Commerce Commission it is shown to be 38.55 per cent of the total train mile cost; whence the cost of a passenger train mile in 1918 would be $1.20 and the cost of the reduction in passenger mileage would be $79,665,000, leaving the economies from all other sources $40,141,000. The saving from suppressed passenger service represents comforts and accommodations of which the public has been deprived.

In his report to the President dated September 3, 1918, the director general claims to have saved:

Per cent of operating expenses	
0.16	$6,115,000 in the salaries paid to officials and to counsel;
0.18	7,000,000 in advertising;
0.11	4,424,000 in consolidated ticket offices;
0.03	1,186,000 in insurance; and
0.32	12,142,000 in the abolition of outside agencies.
0.80	

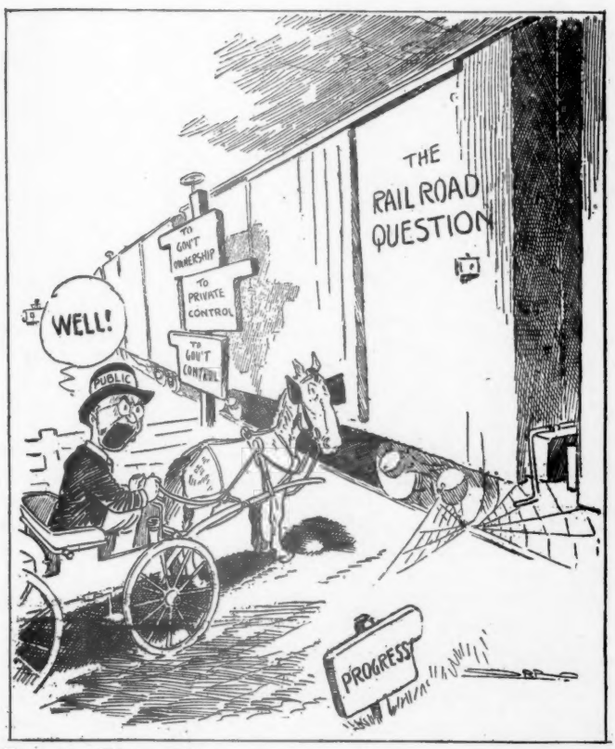
which leaves $9,274,000 to represent economies from all sources other than those specified.

The secretary of the interior evidently does not consider the suppression of advertisements and the consolidation of ticket offices unalloyed benefits, because in his last annual report, after mentioning various drawbacks to tourist travel, he says:

"The consolidation of ticket offices in the large cities also adversely affected national park travel. *With opportunity gone to obtain accurate information* concerning the more or less complicated routes from the east to the western parks, many preferred to spend their vacations in their customary resorts, with whose ways and means they were well acquainted.

"It is earnestly hoped that, with the close of war, these discouragements to travel will be fully removed before the next season. Tourist travel should be heartily encouraged. Furthermore, *the important work accomplished by the railroads* and this department in close co-operation during the last four years in the direction of informing the people of the country concerning the greatness of their scenic possession and recreational areas *should not be lost.* The national park system is one of America's greatest assets and it must not be overlooked in planning the development of American industry after the war."

Compelling the railroads to pay their corporate officers out



From the Chicago Tribune

Blocking Traffic

of corporate funds instead of charging these expenditures to operating expenses, as was done during the test period, diminishes the fixed return of the railroads and to that extent subjects them to the loss of double the amount. Yet the saving from all of these specified sources totals considerably less than 1 per cent or 0.80 per cent.

Nearly all of this insignificant amount accrues from withholding comforts and conveniences from the public that they have long enjoyed and which causes numerous complaints and unfavorable criticism, and inspire resolutions of trade bodies favoring the return of the railroads to their owners,

with legislation to enable them to meet existing conditions.

The 16,863,633 car miles saved by re-routing freight amounts to but two-tenths of one per cent of the total freight car mileage of the regions in which the economy was effected.

While much stress has been laid on the small economies which we have enumerated, they have been sources of irritation and friction out of all proportion to their amounts, and their perpetuation under private or government operation seems unwise. Rearrangement of local passenger service without over-much consideration of the public's views; indifference to promoting traffic or settling up vacant lands; and neglect of small matters affecting the personal comfort of the traveler that have grown out of competitive conditions and been created by local managements directly responsive to the needs of the community, are some of the reasons given by the patrons of the roads for desiring their return to private management, with such legislation as will enable the owners to receive them back from the government.

The Railroads' Plan

The plan evolved by our committee, after arduous study extending over a period of about six years, that has been presented to you by our chairman, Mr. Cuyler, and expounded by our counsel, Mr. Thom, has been adopted by the Association of Railway Executives, representing about 92 per cent of the railway earnings of the country. In it we ask Congress to make it possible for the carriers to give the public the advantages of conservation of capital by requiring unification of lines and terminals, when required in the public interest, by promoting useful consolidations, and permitting agreements as to rates and practices, the benefits of which have been proven during federal operation, but which the carriers by law have been prevented from supplying.

Its fundamental features, to which details of organization and operating machinery are subordinate, are:

(1) The creation of a department of transportation, headed by a secretary, who would sit at the President's council table, who would relieve the Interstate Commerce Commission of its executive duties; and in whose jurisdiction would be centered rate regulation subject to revision by the Interstate Commerce Commission, and the fixing of wages, and who would use the power of the administration to maintain proper service, to create the necessary credit for the carriers, and to maintain harmonious relations between employers and employees.

(2) The adoption of a fixed policy as to the revenues of the carriers by requiring that the influence of the President, through his secretary of transportation, shall be put behind movements for increased rates which he finds proper, and the establishment of a statutory rule for rate-making, which shall require that rates be not only reasonable but adequate and sufficient to protect existing investment and to attract capital necessary to maintain existing properties up to the standard of the public need, and for the construction of extensions and branches.

(3) To provide for compulsory federal incorporation and for the elimination of the conflict of regulating power between the states and the federal government as to all essential matters, including rates, state and interstate, with as little interference as possible with the state commissions in carrying out the intended purposes.

I wish to record the hearty approval and recommendation of the plan by substantially all of our constituents; as well as my own, and to express the belief that if transmuted into law it will mark an epoch in the transportation history of the United States. Competent critics, both home and foreign, have heretofore characterized the service of the railways of the United States as the best in the world, notwithstanding they have the lowest capitalization, pay the highest wages and collect the lowest tolls from the public. We believe that the character of service that has merited this high praise can be greatly improved by profiting from the experience gained in private and government operations. Our plan is not presented in the shape of a hard and fast bill, but is offered as a suggestion, by no means inflexible, of a way to attain desired ends.

The question of a guarantee was freely discussed in our deliberations, but we do not ask for a guarantee. We recognize that the establishment of a definite guarantee would stifle all incentive to efficient management and would destroy competition as to service and facilities, for if necessary revenue could be obtained without effort what inducement would exist to make an effort?

To obtain the most efficient and economical management those charged with the conduct of the business must be personally interested.

Under our plan, if a rate system be put in effect in a given region that will produce revenue adequate to yield a fair return on roads operated under average conditions and with reasonable efficiency, and to enable them to maintain their credit and pay satisfactory returns to their security holders, some roads below the average which should never have been built, or which were poorly located and are indifferently managed, may be forced to reorganize or sell their properties, while those above the average will prosper; but all without exception will be stimulated by self-interest to create new and increase existing traffic by competition in service and facilities, because by so doing the returns to the owners are increased and at the same time the public is better served.

The carriers desire to be permitted to use all legitimate means to earn sufficient to provide safe, adequate and sufficient service, to protect their existing investments, to attract new capital, and to reflect the cost of wages and all other expenses incident to furnishing transportation.

Under our plan the measure of success of their operation depends on the efficiency and economy of their management, the extent to which their traffic is fostered and industrial development on their lines is encouraged, and recognizing this they accept full responsibility for results.

Mr. Kruttschnitt was asked several questions regarding the matter of equipment purchases. In reply to a question by Senator Smith as to whether the railroad companies had not themselves submitted the budgets to the Railroad Administration, Mr. Kruttschnitt said that the Southern Pacific in sending in its budget had made the statement that it needed no new equipment. It had recently ordered 100 locomotives, some of which were later held back to allow the standard locomotives to be built first, and it was building 5,300 freight cars at its own shops. It was allotted no engines but was allotted 2,000 freight cars at a cost of $3,000 each, which it considered less efficient than the cars it was building for $2,000 each. The difference in cost was largely due, he said, to the fact that less steel was used than in the government cars. The allotment of standard cars was made, he said, in spite of the showing made by the company that for five years it had had a per diem balance in its favor averaging $1,250,000 a year, showing that it had more cars than were needed for its own traffic, and in spite of the fact that it had increased the efficiency of its cars by 84 per cent in two years. After the armistice was signed the railroads had asked the Railroad Administration to cancel the outstanding car order and others involving charges against the corporations but had been told that it was too late to cancel the cars.

Requisites of a Proper System of Regulation

Alfred P. Thom, counsel for the executives, continued until Monday his argument on the legal aspects of the problem, the first part of which was reported in last week's issue. After outlining the opposition to the five-year plan, declaring that an extension during times of peace of the present war control of the railroads would be unconstitutional be-

cause it would give the President power to set aside all laws affecting state and interstate commerce, Mr. Thom took up the requisites of a proper system of regulation. He stated that the free flow of investment capital into railroad development had been checked since 1910 by the declining tendency of net earnings, the rigid state and national regulation of both revenues and expenses, and the lack of any assurance to the investing public that new funds invested in the business would earn a fair return. To a considerable extent Mr. Thom's argument was that which he had formerly presented before the Newlands committee. Mr. Thom took up a table introduced by Commissioner Clark, from which the latter had argued that the railroads had fared well financially in the past ten years, and pointed out that these figures show the following:

1. Every year but one after 1910 up to 1916 showed much lower operating income than in 1910.
2. In every year there was a large increase in the property investment, so that the investment was expanding, while earnings were shrinking.
3. In but one year between 1910 and 1916 were earnings sufficient to pay interest and dividends.
4. The total operating income from 1910 to 1916 was not enough to pay the total interest and dividends.
5. From 1910 to 1916 the funded debt increased $2,200,000,000, while the stock increased only $733,000,000; this three-fold increase in indebtedness resulting from insufficient credit to raise new capital from the sale of shares.
6. In no year from 1910 to 1916 did the carriers earn on their investment as much as 5.35 per cent, a figure which the Commerce Commission had held was less than was necessary in the public interest.
7. The average earnings for the whole period were only 4.94 per cent, or considerably below the danger level marked by the commerce commission.

Discussing state regulation, Mr. Thom said that in every state south of the Potomac and east of the Mississippi rivers the scale of state rates is different, showing an unfair and unequal distribution created by the states themselves, not only as against interstate commerce but as between the states. No question of the violation of state rights is involved, he said. The question is whether or not, in a matter of common interest to all, one state shall determine for itself the proportion of the common burden which it will bear. Of course, he said, if government ownership comes, the entire question will be removed because the national government would control the whole field. He said that state traffic produces 23 per cent of the freight revenues and 15 per cent of the volume, while state passenger traffic represents about 50 per cent of the revenues.

As to the decline of railroad credit, Mr. Thom pointed out that there is no longer any field for speculative investment in railroad securities. He also declared that the prices of outstanding stocks and bonds are not a proper index of railroad credit because the outstanding bonds represent preferred liens and that the credit of a company is determined by its ability to market new securities, particularly stock. The railroads have already passed the danger line as to the proportion of stock and bonds, because more than 60 per cent of their securities are bonds. The Pennsylvania Railroad has not been able to sell a share of stock for five and one-half years, although 75 per cent of its capitalization is in stock and only 25 per cent is indebtedness. The New York Central has about 75 per cent of bonds and 25 per cent of stock and was recently unable to sell its stock after it had been at par for some time, because the proposed offering brought the price below par.

"How can we by any legislation improve that situation?" asked Senator Watson.

Mr. Thom, after emphasizing the fact that he was criticizing systems and not men, declared that the credit of the carriers would be improved if the factors which had made it so uncertain in the past were removed and if it was made possible for the regulating body to act with something like the promptness of a business man in dealing with his own affairs in passing on important questions affecting the carriers, and if political considerations which made it unpopular for a state or the interstate commission to allow an increase in rates could be removed. After reaching the conclusion that the present regulating machinery does not possess the quality of business judgment which the situation calls for, the railway executives have proposed a new plan, feeling that the higher position a man occupies in the government, the more courageous his action and the greater his sense of responsibility is likely to be.

"We recognize," said Mr. Thom, "that we cannot get away from politics when our government is based on politics, but we ask to be regulated by the strongest and most responsible of political agencies. We believe we will find more strength at the President's table than in a bureau, and that his policies will be those of the administration. In our opinion, when a man reaches the dignity and responsibility of a cabinet officer he is less subject to petty political influences and more likely to decide questions of public policy with an eye solely to the public interest. His realization of the public needs and his proposals to meet these needs would have behind them the force of the administration and the successful supervision of transportation would be necessary to the success of the administration. Questions relating to railroad revenues, for example, ought not to be determined by the selfish interests of the railroads or the selfish interests of the shippers, but by the public interest. We believe that transportation is of such vital importance in our national life that it is entitled to its representation in the cabinet, along with a representative of agriculture, a representative of commerce and the representatives of the army and navy."

Mr. Thom added that it was not proposed that the secretary of transportation shall have any direct relation with the great army of employees. Their relations will be with the railroad companies. He did not believe it would be possible for one man to control the votes of the employees, because labor has its own politics. He thought this was demonstrated by the results of the last election because, although a cabinet officer had the most direct relations with all the railroad employees in the country, the other party won. He said he had heard no suggestion that Mr. McAdoo had attempted to use his power to influence the votes of the employees in the election, but he believed that if the secretary of transportation should attempt to do so, the effort would defeat its own purpose.

"We do not believe the American people would accept the idea of a single uncontrolled head of the American transportation system. It would demand a check and under the plan we have offered the Interstate Commerce Commission would be relieved of some of its burdens and would be raised in dignity as a judicial body. It would act as a check both on the railroads and on the department of transportation, while with the suggested regional commissions assisting it in various parts of the country it would be brought much closer to the individual communities, and local questions would be heard by the local commissions before coming up to the central body for review."

Mr. Thom said a great deal can be said in favor of the initiation of rates directly by the Interstate Commerce Commission, but that this plan entailed difficulties because of the inability of a commission to respond readily enough to business needs. Interstate Commerce Commission decisions are now controlled by considerations which do not make for promptness. The railroads urge that Congress shall establish a statutory rule of rate-making, that rates shall not only

be reasonable from the standpoint of the shipper, but adequate to insure proper service by insuring a reasonable return on the investment to attract new capital. While the law now theoretically provides this, in practice the question of adequacy has become minimized and is given less consideration than the desire for low rates. The commission has held in the past, he said, that it is not responsible for providing sufficient income for the railroads, but that it is limited to fixing reasonable rates. Since that decision the commission has advanced some, but it has been hampered by the same idea and while it has always taken wages into consideration it has held in at least one decision that it could not be expected to raise rates sufficiently to pay extravagant wages.

Mr. Thom filed with the committee a discussion of state railroad laws prepared by S. T. Bledsoe, general counsel for the Atchison, Topeka & Santa Fe, showing the numerous conflicts. Mr. Thom developed the point that many states either prohibit the consolidation of railroads or require them to obtain the approval of the state and he declared that it would not be sufficient to repeal the federal laws against such consolidations. Therefore, federal incorporation was necessary to remove the obstacle of state prohibition of a consolidation permitted by the federal government. He said he thought the people had about reached the conclusion that there are too many railroad companies.

After Mr. Thom had concluded his argument, Senator Kellogg asked why a secretary of transportation was necessary and why a railroad administrator not a cabinet member and with a long term of office would not be better.

"Don't you fear," he asked, "that in the face of an election the cabinet officer would hesitate to do anything which might be unpopular?"

"We think the most popular thing he could do would be to furnish good service. We want him to be responsible to the people for adequate service," replied Mr. Thom.

Senator Cummins asked whether the responsibility for net income did not logically go with the control of revenues and expenses and whether the government should not guarantee the return on capital. Mr. Thom replied that there were enormous practical difficulties attendant upon such a plan and that it might be wise to seek something short of a government guarantee. Senator Cummins also remarked that the power which it is proposed to give to the secretary of transportation is essentially different from and much greater than that possessed by the cabinet officers. For instance, the secretary of agriculture does not fix the price of agricultural products.

Mr. Thom replied that the government is exercising a much greater power in the case of transportation than in the case of other branches of activity and that this fact makes it necessary to give the cabinet officer in charge of transportation a different relation. His authority, however, would be reviewable by another body.

As to the principles which should govern the fixing of rates, Mr. Thom said that the duty of the government should not only be to make each rate reasonable, but the rates as a whole adequate, considering the condition of the average roads in each territory. This would leave some of the weaker roads subject to the usual loss of commercial failure, while it would allow the more prosperous roads to earn more than might otherwise be considered necessary. Senator Cummins asked if it was proposed that these roads should make some contribution to the treasury.

"We have deliberately left that subject open," replied Mr. Thom.

Senator Pomerene suggested the possibility of allowing state commissions to make rates, but subject to review by the Interstate Commerce Commission. Mr. Thom thought this plan impracticable, not only because of the delays which would ensue, but because of the reluctance of a federal body to disagree with a state authority.

Director General Hines has filed with the committee a statement promised by Mr. McAdoo while he was on the stand, the purpose of which was to show that during the first four months ending April 30, 1918, during which the railroad corporations were operating the railroads as agents of the government and through their own officers, because the federal managers had not yet been appointed, the operating expenses had increased by $215,000,000 as compared with the corresponding period of 1917, while the revenues had increased only $108,000,000, and the net operating income had decreased $109,000,000. This was before either rates or wages had been advanced and represented the period of some of the worst winter weather. Mr. McAdoo had suggested this for the purpose of showing that government operation was not responsible for the enormous increase in expenses during 1918.

Federal Railway Companies Proposed

Victor Morawetz, formerly chairman of the Atchison, Topeka & Santa Fe, has filed with the committee an outline of a plan for a federal railway board to organize 10 or 15 federal railway companies with power, with the approval of the federal railway board, to acquire all or any existing lines of railway. Under his plan the federal railway board would have plenary and exclusive power of regulation of the federal corporations and to appoint regional boards of regulation and one central board of regulation. The plan also proposes a government guarantee not to exceed 65 per cent of the estimated operating income, and that interest on debentures should not exceed 40 per cent of this operating income, and for a division of operating income above a certain figure between the stockholders of the railroads and the government.

From the Dayton Journal.

Another Case of Intended Abandonment

General News Department

The Pittsburg, Shawmut & Northern had 108 employees and two officers in government service during the war. Of these men 65 were in the infantry, 14 were in the New York state guard, and 11 were with railroad engineers' regiments.

Senator Pomerene (Democrat) and Representative Esch (Republican) have introduced in Congress bills providing for the future regulation of the railroads by greatly amplifying the powers of the Interstate Commerce Commission. The provisions of those bills include regulation of security issues, construction of railroad extensions, train service and operation; and they authorize the Commission to require pooling of traffic and the common use of cars, terminals and other facilities; also to fix minimum rates for transportation.

Track Elevation in Chicago, was the subject of a conference this week, at which representatives of the city and officers of the Railroad Administration exchanged views. R. H. Aishton, regional director, Northwestern region, said that the Railroad Administration would offer no objections to the inauguration or resumption of such work provided the expenditures were kept within reasonable limits. The details of the work to be undertaken, and the financing are matters which, said he, must be disposed of by the individual corporations involved.

Fire Protection for Railroad Properties

This is the title of a manual of 98 pages which has been issued by the United States Railroad Administration, Division of Finance and Purchases, for the use and information of fire protection inspectors. It is bulletin No. 8. This manual has been compiled by Charles N. Rambo, manager of the Fire Loss and Protection Section, of the Division of Finance and Purchases, and includes detailed instructions and advice on every conceivable branch of this subject which is of interest to railroad men.

Condition of Locomotives and Cars in Northwestern Region

In the week ending January 4, locomotives in service on lines in the Northwestern region, numbered 8,004, making the efficiency 85.2 per cent, or about the same as in the preceding week, reported in our issue of January 17. The number of freight cars on the Northwestern lines during the week totaled 370,052, compared with an ownership of 334,615. Bad order cars numbered 20,886 (or 5.6 per cent), as compared with 18,916 (6.5 per cent) for the same week in 1918. Freight cars in outside shops totaled 208. The number of employees in service in car repair shops totaled 21,275 (working 47 hours (average) in the week), as compared with 17,537 in the same week of 1918.

Medals Awarded to Atterbury and Felton

Upon the recommendation of General Pershing, a distinguished service medal has been awarded to Brig. Gen. William W. Atterbury, formerly vice-president of the Pennsylvania Railroad, "for exceptionally meritorious and distinguished services." As director general of transportation in the face of almost insurmountable obstacles he organized and brought to a high state of efficiency the transportation service of American Expeditionary Forces. The successful operation of this most important service, upon which the movements and supply of the combat forces were dependent, was largely due to his energy, foresight, and ability.

S. M. Felton, president of the Chicago Great Western, and until December 31 director general of military railways, was awarded the distinguished service medal by the Secretary of War on January 18, on the recommendations of Gen. Peyton C. March, chief of staff, for "especially meritorious and conspicuous service in supervising the supply of railway material and the organization of railway operation and construction troops."

Revision of M. C. B. Loading Rules

The loading rules of the Master Car Builders' Association as revised for 1918 have been approved by the Railroad Administration and are now ready for distribution. Numerous changes have been made in the present volume. The size of the pages has been increased to 5¼ in. by 7½ in. in order to permit the use of larger and clearer cuts. The general rules for loading material have been grouped in the first section and following these are the complete instructions regarding the handling of various commodities. All the rules governing the loading of each commodity are grouped together so that it is not necessary to refer to various portions of the book. In case railroads desire to provide copies of the rules for shippers, any of the sections will be printed in pamphlet form by the association. The Car Service Section has issued a circular instructing the railroads to refer any questions regarding loading that may arise to the secretary of the M. C. B. Association.

Employees to Be Paid by Check

The Pennsylvania Railroad, and other railroads that had not heretofore adopted the plan, will pay their employees by checks instead of by cash beginning with the month of February, except at some points where difficulty would be experienced by the employees in cashing checks. This plan has been adopted at the instance of the Railroad Administration in the interest of uniformity because most of the railroads have heretofore paid their employees by checks and because the employees favor the change as it will enable them to avoid the inconvenience of waiting for the pay car. The announcement of the change on the Pennsylvania caused a protest on the part of business interests of Altoona because it was proposed to pay in checks drawn on Philadelphia banks. When this was brought to the attention of the Railroad Administration, instructions were issued to have the employees at Altoona paid in checks on Altoona banks.

Railway Supply Companies in War Work

Information concerning war activities has been received from the United States Light & Heat Corporation, Niagara Falls, N. Y., and the Commonwealth Steel Company, St. Louis, which was received too late to be included in the article on that subject published in the annual review number of the *Railway Age*. The United States Light & Heat Corporation devoted 75 per cent of its total plant capacity to war work and utilized 900 employees, representing 75 per cent of its forces, on that work. Parts for armored tanks constituted 60 per cent of the output of the company, parts for gas shells 8 per cent, parts for army trucks 1 per cent, parts for aeroplanes 1 per cent and parts for batteries 10 per cent. The buildings devoted to war work numbered 15. One new plant containing 17,000 sq. ft. of floor space and two additions to existing plants, representing 27,960 sq. ft. were built to provide facilities for war production. The output of peace time products was approximately 50 per cent of the average before the war.

The Commonwealth Steel Company, St. Louis, Mo., constructed tractor frames for tractors of various sizes, special trucks for gun cars and main castings for Pershing locomotives. Various additions to the company's plant facilities, such as the enlargement of foundry and core rooms and the installation of new machinery were necessitated by war demands.

REVENUES AND EXPENSES OF RAILWAYS

MONTH OF NOVEMBER, 1918

Name of road.	Average mileage operated during period.	Operating revenues			Operating expenses						Operating ratio.	Net from railway operation.	Railway tax accruals.	Operating income (or loss).	Increase (or decr.) comp. with last year.
					Maintenance of										
		Freight.	Passenger.	Total (inc. misc.)	Way and structures.	Equipment.	Traffic.	Transportation.	General.	Total.					
Alabama & Vicksburg	141	$151,439	$53,580	$220,799	$28,371	$53,848	$1,336	$92,998	$6,937	$183,525	83.11	$35,277	$11,425	$23,877	—$33,819
Alabama Great Southern	312	618,701	171,761	836,854	65,678	260,435	13,159	399,595	14,876	760,004	90.81	76,849	21,229	55,605	—135,933
Ann Arbor	301	294,643	52,282	365,135	68,403	64,199	146	136,563	9,452	278,843	76.36	86,290	13,100	73,152	18,020
Arizona Eastern	377	304,363	35,686	361,920	67,225	52,415	846	117,680	6,899	245,228	67.75	116,692	17,091	99,592	—50,848
Atchison, Topeka & Santa Fe	8,646	10,930,440	2,905,347	14,814,205	1,955,004	3,179,484	132,135	4,894,882	252,884	10,383,529	70.09	4,427,736	501,104	3,923,762	—43,890
Atlanta & West Point	93	134,247	82,556	241,412	22,220	45,083	2,552	81,351	6,381	160,908	66.65	80,504	8,400	72,104	30,189
Atlanta, Birmingham & Southern	639	340,172	74,030	461,321	113,324	123,359	4,875	239,850	12,212	493,687	107.01	—32,366	15,700	—48,271	—73,836
* Atlantic & St. Lawrence	...	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Atlantic City	170	280,458	138,080	440,424	48,614	26,601	417	172,576	758	249,039	56.54	191,385	1,200	179,385	187,709
Atlantic Coast Line	4,839	3,318,632	1,326,872	4,991,597	715,150	1,050,825	47,418	2,195,347	102,519	4,127,886	82.69	863,707	250,000	613,125	—258,778
Baltimore & Ohio	5,145	12,020,717	2,557,705	15,529,392	2,613,573	4,325,107	147,239	7,198,639	529,237	14,908,133	95.99	620,659	382,211	237,650	—1,240,204
Baltimore & Ohio Chicago Terminal	91	.....	13	130,949	24,966	52,330	243	127,289	8,089	216,231	165.13	—85,283	31,876	—117,159	—92,708
Baltimore, Chesapeake & Atlantic	87	90,975	34,596	130,631	9,788	52,685	872	78,094	3,961	145,399	111.31	—14,769	3,900	—18,669	17,160
Bangor & Aroostook	632	359,575	77,160	467,903	40,306	112,225	3,592	186,930	14,866	363,309	77.64	104,594	17,735	86,851	—8,895
Beaumont, Sour Lake & Western	118	108,738	17,609	131,914	20,322	23,513	347	40,941	3,676	88,798	67.32	43,116	1,600	41,516	—4,055
Belt Ry. Co. of Chicago	31	.....	.....	307,527	29,616	45,983	543	209,313	4,986	293,441	95.41	14,086	16,442	—2,356	—63,651
Bessemer & Lake Erie	208	1,023,521	33,183	1,088,107	123,339	397,706	10,582	367,973	20,307	909,808	83.61	178,294	11,444	166,850	—209,637
Bingham & Garfield	36	263,765	4,285	281,725	45,783	52,064	1,825	61,584	3,681	173,948	61.74	107,777	13,999	95,777	—80,257
Birmingham Southern	27	68,015	.....	84,179	2,942	6,237	708	19,303	2,891	32,081	38.11	52,098	3,162	48,936	54,008
Boston & Maine	2,258	3,965,450	1,575,817	6,280,374	1,050,266	1,947,469	40,342	3,226,720	191,882	6,486,946	103.28	206,571	182,385	388,957	—1,141,991
Buffalo & Susquehanna R. R. Corp.	294	166,267	5,689	175,868	37,208	132,133	1,952	68,997	7,372	247,664	140.82	—70,796	4,100	—74,896	—114,339
Buffalo, Rochester & Pittsburgh	584	1,312,534	104,262	1,479,314	243,263	573,640	14,719	712,514	33,375	1,579,205	106.75	—99,889	26,734	—126,624	—284,246
Canadian Pacific Lines in Maine	233	211,437	20,573	246,597	56,932	50,660	1,912	108,925	3,279	220,284	89.32	26,312	21,500	4,812	9,178
Carolina, Clinchfield & Ohio	282	420,198	26,971	455,109	64,040	111,210	3,406	148,293	11,645	338,371	74.34	116,739	14,800	101,939	—57,895
Central of Georgia	1,918	1,182,659	456,564	1,289,904	251,770	363,341	29,226	692,005	54,880	1,391,729	107.96	397,326	58,302	338,615	—179,797
Central of New England	301	433,784	18,332	474,014	168,442	118,987	527	272,800	—211	560,706	118.28	—86,693	17,800	—104,517	—213,751
Central of New Jersey	684	2,836,178	580,432	3,704,189	373,129	1,289,587	16,677	1,857,146	71,441	3,621,022	97.75	83,167	169,973	—86,903	—810,233
Central Vermont	411	314,952	70,233	428,997	92,892	130,593	5,231	252,502	14,897	496,266	115.68	—67,269	15,317	83,596	—107,679
Charleston & Western Carolina	342	193,974	70,512	279,520	28,520	54,203	4,917	123,344	5,923	216,633	77.50	67,887	9,000	53,887	—28,740
Chesapeake & Ohio Lines	2,491	5,464,019	1,422,076	7,263,217	1,032,029	1,267,125	34,251	2,476,716	99,605	4,943,327	68.05	2,319,889	176,816	2,142,883	760,004
Chicago & Alton	1,050	1,583,587	373,321	2,078,050	299,771	535,892	26,756	897,025	41,505	1,806,436	86.92	271,614	53,500	217,855	20,613
Chicago & Eastern Illinois	1,131	1,832,704	338,139	2,320,752	311,227	648,466	20,604	927,222	47,774	1,958,626	84.39	362,126	79,592	282,422	—15,896
Chicago & Erie	269	908,707	127,348	1,104,759	121,520	69,624	11,833	575,368	22,015	802,511	72.64	302,247	—8,416	310,663	193,634
Chicago & North Western	8,090	8,176,554	2,261,814	11,315,957	1,660,276	2,322,925	59,349	5,094,642	229,398	9,419,328	83.23	1,896,630	625,000	1,270,377	—979,076
Chicago, Burlington & Quincy	9,373	9,898,291	2,256,400	13,071,405	1,592,143	2,678,620	75,083	4,993,427	300,275	9,706,342	74.25	3,365,063	451,919	2,913,143	533,405
Chicago Great Western	1,496	1,115,625	362,581	1,594,152	251,746	466,155	21,527	726,323	42,884	1,519,309	95.24	74,804	54,975	18,725	—215,599
Chicago, Indianapolis & Louisville	637	709,080	193,625	984,969	137,583	321,818	12,345	415,367	22,890	910,318	92.42	74,651	36,233	44,372	—101,025
Chicago Junction	12	.....	.....	308,535	52,417	31,365	25	231,841	6,405	322,053	104.38	—13,518	2,156	—15,674	—30,150
Chicago, Milwaukee & St. Paul	10,308	8,879,476	1,726,844	11,571,383	1,607,313	3,798,543	78,633	5,152,196	272,766	10,921,109	94.38	650,271	514,640	135,996	—1,530,022
Chicago, Peoria & St. Louis	247	126,185	21,455	157,032	51,314	67,105	1,847	89,050	9,153	218,469	139.12	—61,437	7,400	—68,837	—110,322
Chicago, Rock Island & Gulf	474	320,897	76,618	423,105	61,873	56,092	5,086	171,251	11,078	306,953	72.54	116,151	9,553	106,571	—18,323
Chicago, Rock Island & Pacific	7,728	6,026,845	2,097,384	8,665,381	1,384,944	2,342,884	85,526	3,783,187	184,005	7,826,830	90.32	838,357	350,370	457,955	—1,642,997
Chicago, St. Paul, Minneapolis & Omaha	1,749	1,645,649	490,209	2,348,527	325,687	403,626	15,964	1,084,599	57,764	1,902,291	80.99	446,236	75,814	370,146	—4,325
Chicago, Terre Haute & Southeastern	374	401,680	19,867	428,763	68,036	145,588	2,273	144,478	8,282	371,653	86.67	57,110	14,500	42,610	—10,964
Cincinnati, Indianapolis & Western	321	201,461	37,935	263,107	52,685	85,357	4,012	130,498	12,015	284,844	108.26	—21,737	10,868	—32,605	—51,083
Cincinnati, New Orleans & Texas Pacific	337	917,052	372,714	1,356,590	155,456	492,771	22,380	545,501	27,340	1,249,363	92.09	107,226	38,250	68,969	—134,527
Cincinnati Northern	251	246,530	14,930	268,960	36,209	68,693	1,871	97,553	4,665	208,991	77.70	59,969	7,567	52,383	11,099
Cleveland, Cincinnati, Chic. & St. Louis	2,396	4,452,118	1,165,218	6,134,343	602,731	1,255,219	19,195	2,539,465	100,835	4,528,029	73.81	1,586,314	1,173,560	1,412,319	662,440
Colorado & Southern	1,100	1,012,419	130,780	1,246,540	134,748	249,383	6,940	399,323	34,800	828,674	66.47	417,866	47,000	370,834	—9,328
Colorado & Wyoming	42	26,712	889	90,899	9,748	13,548	575	40,871	3,856	68,597	75.46	22,301	4,500	17,802	—613
Cripple Creek & Colorado Springs	116	59,263	4,370	65,284	4,550	10,424	1,093	22,983	2,735	41,784	64.00	23,500	6,925	16,575	—27,226
Cumberland Valley	163	548,457	56,167	648,617	52,041	86,417	6,652	181,803	11,198	328,604	50.66	309,963	10,958	299,005	161,601
Delaware & Hudson Co.—R. R. Dept.	902	2,574,164	186,494	2,933,494	414,581	819,163	16,177	1,345,374	90,110	2,699,537	92.02	233,857	58,275	176,012	—5,322
Delaware, Lackawanna & Western	955	4,626,437	1,030,850	6,264,230	690,103	1,140,453	34,291	2,518,618	107,967	4,535,339	72.40	1,728,891	234,660	1,494,223	312,450
Denver & Rio Grande	2,651	2,454,172	333,251	2,935,940	454,617	710,196	12,739	1,073,421	20,184	2,302,006	78.19	633,484	90,000	343,304	—28,728
Denver & Salt Lake	255	150,160	21,714	177,453	96,448	123,018	906	204,247	6,074	440,694	248.34	—263,241	9,000	—272,241	—285,459
Detroit & Mackinac	381	78,327	17,718	108,396	34,693	73,626	3,296	73,299	6,199	191,114	76.31	—82,718	8,000	—90,718	92,493
Detroit & Toledo Shore Line	61	173,501	.....	178,116	16,041	17,251	373	56,835	1,699	92,031	51.66	86,085	7,250	78,825	19,898
Detroit, Toledo & Ironton	457	299,943	11,959	326,846	73,493	136,763	2,418	188,123	8,435	409,232	125.21	—82,386	8,900	—9,296	—54,479
Duluth & Iron Range	284	406,432	19,960	449,886	103,169	125,012	673	221,032	16,412	459,405	102.11	—9,519	16,735	26,255	—346,172
Duluth, Missabe & Northern	412	1,280,844	32,471	1,377,248	156,164	118,262	2,651	318,522	47,876	644,853	46.82	732,396	67,563	664,832	—178,620
Duluth, South Shore & Atlantic	601	296,749	81,541	404,106	73,982	51,877	4,613	177,068	8,621	321,299	79.50	82,807	19,000	63,805	17,411
Duluth, Winnipeg & Pacific	175	149,482	21,496	175,410	20,566	22,897	3,339	61,679	8,179	116,704	66.53	58,707	9,062	49,643	36,623
East St. Louis Connecting	3	.....	.....	99,321	11,323	23,650	281	74,471	3,567	113,336	114.11	14,015	2,013	—16,029	—106,680
El Paso & Southwestern Co.	1,027	1,062,596	154,298	1,261,595	112,232	197,859	9,053	346,741	23,316	695,655	55.14	565,940	262,162	303,778	1,790
Elgin, Joliet & Eastern	808	1,695,069	—95	2,014,854	88,287	374,085	5,924	717,368	24,627	1,209,323	60.02	805,532	50,773	754,756	376,024
Erie	1,989	6,505,844	1,091,387	8,232,526	951,495	1,665,458	48,530	4,652,440	170,563	7,531,505	91.48	701,021	17,182	683,596	110,090
Florida East Coast	764	417,303	161,428	686,078	139,279	161,662	5,729	350,387	19,278	679,805	99.08	6,214	38,889	—33,028	—183,158
Fonda, Johnstown & Gloversville	88	27,264	61,296	92,557	12,080	9,203	670	34,532	7,979	64,466	69.65	28,091	5,900	22,191	—4,677

* Included in Grand Trunk Western. † Included in Grand Trunk Western. ‡ Included in Baltimore & Ohio R. R.

REVENUES AND EXPENSES OF RAILWAYS

MONTH OF NOVEMBER, 1918—CONTINUED

Name of road.	Average mileage operated during period.	Operating revenues			Operating expenses					Operating ratio.	Net from railway operation.	Railway tax accruals.	Operating income (or loss).	Increase (or decr.) comp. with last year.
		Freight.	Passenger.	Total (inc. misc.)	Maintenance of Way and structures.	Maintenance of Equipment.	Traffic.	Transportation.	General.	Total.					
Ft. Smith & Western R. R. Co.	253	$83,220	$24,493	$115,582	$17,722	$28,024	$3,600	$39,073	$6,084	$94,731	81.95	$20,852	$4,500	$16,352	—$40,004
Fort Worth & Denver City	451	611,244	144,646	781,879	65,011	141,854	3,043	309,132	24,889	545,916	69.81	235,963	19,800	216,159	—23,627
Fort Worth & Rio Grande	235	54,042	32,191	95,234	17,270	27,631	2,052	51,444	5,649	104,046	109.25	—8,812	3,019	—11,832	—21,437
Galveston, Harrisburg & San Antonio	1,382	1,132,779	399,478	1,852,920	235,794	363,601	21,991	775,211	52,926	1,463,455	78.98	189,465	56,183	132,695	—531,629
Galveston Wharf	13	.....	.....	65,895	1,427	557	125	28,112	278	56,640	85.95	9,255	11,800	—2,545	20,381
Georgia	328	479,809	172,407	699,505	64,850	86,073	7,032	279,391	15,860	453.378	64.81	246,128	5,950	240,178	73,712
Georgia, Southern & Florida	402	205,944	93,040	349,746	58,786	89,031	4,720	139,399	7,838	309,989	86.06	48,758	16,956	31,704	—25,730
Grand Rapids & Indiana	569	432,813	140,685	633,873	79,488	150,627	9,729	288,489	22,150	551,938	87.07	81,934	28,827	53,105	—11,657
Grand Trunk Western	1,002	1,498,938	222,409	1,864,402	210,211	379,793	13,288	779,169	46,912	1,445,790	77.54	418,613	48,159	370,451	156,906
Great Northern	8,261	8,251,486	1,215,791	10,155,811	1,424,170	1,815,735	63,651	4,048,568	158,183	7,609,844	64.93	2,545,967	574,969	1,970,860	29,143
Gulf & Ship Island	307	129,729	36,249	186,756	53,218	31,759	3,482	72,097	8,440	169,305	90.65	17,454	9,594	7,857	—47,191
Gulf, Colorado & Santa Fe	1,917	1,250,659	318,008	1,657,676	242,706	227,303	9,658	638,586	43,692	1,151,578	69.46	506,098	69,646	436,374	—46,251
Gulf, Mobile & Northern	424	166,819	33,542	211,219	51,577	66,549	4,003	104,847	8,840	235,821	111.64	—24,602	10,842	—35,452	—82,109
Hocking Valley	349	915,142	86,766	1,071,034	136,200	315,874	6,073	425,104	21,065	903,830	84.38	167,204	54,025	113,179	—76,691
Houston, East & West Texas	190	133,192	39,098	188,206	26,252	22,160	895	75,317	—3,591	128,214	68.12	59,992	6,354	53,571	7,143
Houston & Texas Central	887	441,477	184,713	704,683	117,378	125,334	8,303	282,675	17,732	551,352	78.24	153,331	35,408	117,783	—221,724
Illinois Central	4,782	6,845,419	1,753,001	9,196,391	1,281,951	2,348,948	59,537	3,715,252	218,091	7,677,791	83.48	1,518,600	392,132	1,125,286	—418,567
Indiana Harbor Belt	116	.....	.....	518,485	88,038	133,497	1,242	347,452	16,429	586,659	113.14	—68,174	2,134	—70,307	—124,767
International & Great Northern	1,159	853,348	238,203	1,174,600	217,623	278,814	9,144	501,908	35,830	1,047,275	89.16	127,326	30,000	79,326	—317,486
Kanawha & Michigan	176	365,873	103,524	486,525	69,726	123,546	2,004	184,708	13,143	393.127	80.80	93,398	18,835	74,563	7.995
Kansas City, Mexico & Orient	272	70,616	3,473	77,315	27,236	41,544	789	54,967	6,178	130,708	169.05	—53,393	6,250	—59,643	—60,259
Kansas City, Mexico & Orient & Texas	465	99,992	7,916	112,448	23,173	41,992	644	60,723	6,029	132,561	117.88	—20,113	5,000	—25,113	—30,406
Kansas City Southern	774	1,102,857	160,547	1,374,999	184,817	395,206	17,741	671,763	41,296	1,307,802	95.11	68,197	51,198	16,918	—405,562
Kansas City Terminal	24	.....	.....	105,754	19,153	31,190	.....	50,936	—652	101,667	96.13	4,086	10,616	—6,534	—31,814
Lake Erie & Western	900	751,157	45,723	841,434	90,107	229,644	9,364	372,715	24,242	723,272	85.95	118,162	26,239	91,714	—13,888
Lehigh & Hudson River	96	188,204	4,299	199,773	26,082	35,099	1,466	84,445	6,640	153,732	76.95	46,042	6,000	40,041	—37,700
Lehigh & New England	221	306,233	1,369	337,903	52,314	66,417	2,529	105,835	7,381	234,457	69.38	103,445	8,601	94,844	1,506
Lehigh Valley	1,436	5,077,444	422,061	6,014,373	899,246	1,486,916	34,750	2,523,348	112,597	5,078,875	84.44	941,498	161,471	779,962	140,390
Los Angeles & Salt Lake	1,168	889,630	232,634	1,208,262	160.280	255,579	20,225	405,985	24,594	893,896	73.98	314,366	49,924	264,330	—2,833
Long Island	398	549,796	962,905	1,691,535	339,007	350,258	13,710	858,637	35,092	1,611,752	95.28	79,784	89,871	—10,246	—258,725
Louisiana & Arkansas	302	104,397	30,953	136,903	32,485	14.779	2,899	58,155	5,363	113,679	83.03	23,223	10,750	12,473	—22,143
Louisiana Western	207	224,440	91,377	344,195	34,191	57,406	4,634	115,742	10,597	224,394	65.19	119,801	14,676	105,006	—84,018
Louisville & Nashville	4,995	5,663,883	2,058,308	8,187,716	1,230,572	2,020,709	98,485	3,684,269	174,071	7,236,087	88.38	951,629	303,063	647,877	—1,595,397
Louisville, Henderson & St. Louis	199	175,000	71,000	257,750	33,464	42,692	6,285	82,323	6,528	171,528	66.54	86.223	11,500	74,716	36,965
Louisiana Railway & Navigation Co.	356	196,018	71,078	288,190	41,429	52,176	3,371	153,000	6,756	257,456	89.33	30,735	14,000	16,735	—50,173
Maine Central	1,216	983,507	335,698	1,447,229	208,211	388,728	9,614	758,458	37,181	1,405,274	97.10	41,955	63,482	—21,527	—177,175
Maryland, Delaware & Virginia	82	73,480	26,371	102,509	10,764	32,631	434	71,395	2,019	117,245	114.37	—14,736	1,900	—16,636	2,072
Michigan Central	1,861	4,473,521	1,367,576	6,382,961	858,752	1,019,156	46,251	2,619,034	86,787	4,702,927	73.67	1,680,034	168,000	1,511,673	333,843
Midland Valley	387	251,547	61,049	328,219	59,204	62,141	1,341	140,127	13,208	276,020	84.09	52,198	7,101	45,084	—35,127
Mineral Range	100	93,164	1,698	96,894	10,133	26,638	400	44,461	870	76,503	78.95	20,391	3,300	17,091	5,104
Minneapolis & St. Louis	1,646	798,432	152,533	1,006,802	194,546	255,072	6,459	485,720	32,021	973.989	96.74	32,813	60,241	27,551	—129,213
Minn. & International Ry	195	51,185	25,124	80,213	13,623	15,552	462	40,257	3,135	73,025	91.04	7,185	4,011	3,171	—8,447
Minn., St. Paul & Sault Ste. Marie	4,243	2,798,742	485,449	3,478,413	499,179	681,079	24,201	1,675,594	68,987	2,959,549	85.08	518,863	193,339	325,372	—551,971
Missouri, Oklahoma & Gulf	332	119,723	15,866	141,822	32,641	43,683	1,353	76,042	8,464	162,352	114.48	—20,530	9,000	—29,548	—65,181
Missouri Pacific	7,108	6,218,197	1,520,425	8,249,835	1,265,359	1,683,785	68,258	3,180,890	198,945	6,394,451	77.51	1,855,383	279,286	1,574,565	—115,334
Mobile & Ohio	991	965,370	162,780	1,188,431	136,975	450,933	23,175	558,604	37,610	1,208,300	101.67	—19,869	43,376	63,318	—191,067
Monongahela	108	279,045	20,065	315,572	83,906	63,436	488	99,803	5,429	253,063	80.19	62,508	11,950	50,557	21,781
Monongahela Connecting	5	.....	.....	222,079	30,216	47,118	541	123,736	6,424	208,035	93.67	14,044	2,422	11,623	19,864
Morgan's La. & Tex. R. R. & S. S. Co.	400	589,267	133,635	798,866	75,454	159,308	6,412	292,476	16,436	552,118	69.11	246,747	23,627	213,047	—119,419
Nashville, Chattanooga & St. Louis	1,248	1,431,044	587,009	2,073,269	302,431	459,782	11,133	910,417	42,573	1,731,881	83.53	341,489	33,334	308,069	39,053
Nevada Northern	168	218,209	13,739	239,976	31,253	31,300	1,050	61,171	6,676	131,591	54,83	108,385	19,698	88,686	—18,014
Newburgh & South Shore	7	.....	.....	149,734	21,923	22,063	.....	66,717	3,578	114,282	76.32	35,653	8,121	27,532	53,596
New Orleans & North Eastern	203	335,536	98,501	490,965	73,224	157,526	8,010	257,836	10,867	514,062	104.70	—23,096	19,067	—42,181	—148,405
New Orleans Great Northern	284	147,826	38,248	190,958	36,177	37,972	1,040	69,639	6,869	149,016	78.03	51,943	8,026	43,915	6,290
New Orleans, Texas & Mexico	191	115,484	25.194	148,080	32,873	33,951	822	56,431	5,642	131,514	88.81	16,566	21,500	—4,934	—72,234
New York Central	6,079	19,467,737	5,682,207	28,014,171	3,010,126	5,218,346	261,138	10,750,610	591,839	20,176,303	72.02	7,837,868	1,200,421	6,635,091	3,436,234
New York, Chicago & St. Louis	572	2,015,710	108,744	2,189,445	254,115	361,340	18,775	930,096	50,527	1,618,380	73.91	571,065	100,000	471,065	287,006
New York, New Haven & Hartford	1,992	4,057,295	3,460,008	8,630,784	2,005,515	2,018,535	47,423	4,343,112	328,441	8,801,489	101.97	—270,705	272,000	544,082	—2,013,283
New York, Ontario & Western	567	502,274	91,197	750,650	127,236	261,748	6,516	412,315	18,099	925,914	123.34	—175.265	35,000	—210,265	—307.940
New York, Philadelphia & Norfolk	121	562,745	129,109	740,538	85,005	229,927	7,717	310,620	11,486	666,331	89.97	74,207	20,992	53,215	—58,233
New York, Susquehanna & Western	135	333,141	54,590	426,557	34.077	39,318	392	252,099	6,677	332,594	77.97	93,993	16,233	77,760	24,481
Norfolk & Western	2,087	6,748,155	904,932	7,910,911	852,030	2,121,380	6,594	2,677,597	45,169	5,725,770	72.39	2,185,141	200,000	7,984,987	—22.594
Norfolk Southern	907	365,151	119,592	513,104	115.770	98,329	6,304	217,568	21,084	459,706	89.59	53,398	15,800	37,599	—21,521
Northern Pacific	6,576	8,189,352	1,257,321	10,028,583	1,133,848	1,346,206	50,024	3,303,171	170,887	6,011,548	59.94	4,017,035	683,072	3,333,503	1,488,309
Northwestern Pacific	507	265,492	127,142	433,635	81,153	69,904	5,934	197,608	10,969	367,686	.....	65,949	21,956	43,992	—64,743
Oregon Short Line	2,347	2,526,750	347,795	3,044,868	417,148	360,922	13,716	928,687	85,015	1,852,089	60.83	1,192,779	157,754	1,034,800	—77,937
Oregon-Washington R. R. & Nav. Co.	2,068	1,619,542	363,276	2,141,428	421,772	308,347	25,119	917,590	88,684	1,791,172	83.64	350,255	123,466	226,662	—196,999
Panhandle & Santa Fe	772	411,708	72,182	503,942	86,522	208,634	2,969	206,148	16,652	513,816	101.95	—9,874	18,639	—28,746	—225,338
Pennsylvania Company	1.754	7,147,188	1,261,720	9,206,041	1,543,305	2,700,736	79,840	3,686,575	152,147	8,212,785	89.26	987,256	308,393	678,644	—175,884

§ Does not file.

REVENUES AND EXPENSES OF RAILWAYS

MONTH OF NOVEMBER, 1918—CONTINUED

Name of road.	Average mileage operated during period.	Operating revenues			Operating expenses						Operating ratio.	Net from railway operation.	Railway tax accruals.	Operating income (or loss).	Increase (or decr.) comp. with last year.
					Maintenance of										
		Freight.	Passenger.	Total (inc. misc.)	Way and structures.	Equipment.	Traffic.	Transportation.	General.	Total.					
Pennsylvania Railroad	5,342	$21,911,614	$8,302,484	$32,915,931	$5,945,141	$8,830,335	$208,430	$14,456,222	$736,278	$30,623,544	93.04	$2,292,387	$885,196	$1,406,908	—$1,846,639
Peoria & Pekin Union	19	34,864	5,791	130,213	16,769	44,577	14	93,364	3,298	158,422	121.66	—28,209	9,500	—37,709	—35,771
Pere Marquette	2,233	2,315,023	341,556	2,865,398	389,239	499,726	20,167	1,807,354	68,898	2,070,204	72.24	795,193	57,629	737,446	291,631
Philadelphia & Reading	1,127	5,765,177	613,816	6,810,740	695,097	1,896,554	33,091	3,138,713	123,479	5,906,549	86.72	904,190	135,583	768,607	—654,872
Pittsburgh & Lake Erie	224	2,421,173	186,776	2,802,700	413,601	569,824	12,949	926,614	41,575	1,965,078	70.11	837,622	73,900	763,719	218,626
Pittsburgh & Shawmut R. R. Co.	94	92,941	3,592	99,409	28,602	26,502	786	40,086	1,866	97,844	98.42	1,565	19,580	21,145	6,416
Pittsburgh, Shawmut & Northern	204	64,773	4,959	74,558	22,804	88,011	841	37,745	6,893	156,294	209.62	—81,736	1,800	—83,536	—70,727
Pittsburgh & West Virginia	63	120,137	9,362	141,068	47,242	31,159	1,406	61,378	5,423	155,843	110.47	—14,775	14,924	—29,699	—62,871
Pittsburgh, Cincinnati, Chic., & St. Louis	2,386	5,335,578	1,536,711	7,638,773	1,047,796	2,594,945	102,363	3,410,218	168,735	7,376,348	96.56	262,426	256,703	4,067	—1,073,825
Port Reading	21	195,971	.....	262,928	20,208	77,469	18	108,619	1,264	207,578	78.94	55,350	10,000	45,350	—83,805
Richmond, Fredericksburg & Potomac	87	292,939	471,950	819,712	39,309	118,069	3,854	244,882	11,343	423,326	51.68	396,486	15,981	380,483	189,890
Rutland	415	192,236	88,215	341,702	78,244	99,256	7,657	193,286	12,115	390,464	114.27	—48,762	18,142	—66,904	—127,428
St. Joseph & Grand Island	208	154,696	30,151	196,286	47,855	41,231	1,471	129,104	8,940	228,742	116.53	—32,456	8,607	—41,068	24,986
St. Louis, Brownsville & Mexico	548	244,189	101,934	380,090	68,975	97,708	1,262	119,034	11,865	278,845	73.36	101,245	9,944	91,301	9,593
St. Louis Merchants Bridge Terminal	9	.....	413	305,267	41,523	46,239	752	216,264	6,238	311,015	101.88	—5,748	8,659	—14,720	—94,882
St. Louis-San Francisco	4,761	4,451,307	1,547,674	6,451,898	934,597	1,403,781	50,686	2,499,320	173,169	5,047,862	78.23	1,404,036	191,789	1,208,581	—96,336
St. Louis Southwestern	968	846,003	207,935	1,107,542	171,138	343,990	12,608	331,458	32,545	891,151	76.13	216,391	42,094	174,043	—278,504
St. Louis Southwestern of Texas	814	366,926	123,497	520,091	138,347	229,474	5,866	247,023	19,990	640,090	123.07	—119,999	19,531	—139,582	—281,112
St. Louis, San Francisco & Texas	134	94,469	12,544	110,748	25,444	19,758	1,753	56,177	6,524	109,656	99.01	1,092	1,648	—558	8,754
San Antonio & Aransas Pass	1,020	300,928	111,098	434,933	74,646	132,280	3,272	147,530	17,113	374,688	86.14	60,244	13,979	46,258	—42,747
Seaboard	3,563	2,211,065	906,959	3,362,067	645,202	794,269	56,349	1,599,872	80,009	3,202,644	95.25	159,423	128,211	30,753	—563,429
South Buffalo Ry. Co.	35	45,298	.....	135,588	17,703	18,197	395	71,743	1,526	109,563	80.80	26,026	1,400	24,626	25,778
Southern	6,982	7,007,724	2,608,669	10,466,666	991,651	2,678,631	90,849	4,993,748	233,668	9,045,715	86.42	1,420,950	361,685	1,058,323	—1,462,618
Southern in Mississippi	278	90,035	44,858	148,181	13,765	17,518	1,938	74,893	4,015	112,128	75.66	36,052	9,000	27,052	—3,531
Southern Pacific	7,050	9,655,339	2,812,198	13,430,018	1,512,180	3,267,163	95,590	5,076,849	343,258	10,498,874	78.17	2,931,144	620,051	2,309,490	—713,343
Spokane, International Ry. Co.	156	59,714	11,266	73,543	12,413	8,165	1,542	28,219	4,539	54,740	74.43	18,803	3,202	15,563	—33,805
Spokane, Portland & Seattle	554	598,492	106,360	767,075	177,696	122,168	3,881	241,288	19,143	565,705	73.74	201,370	59,300	142,131	—78,473
Staten Island Rapid Transit Co.	23	93,747	62,433	181,243	29,827	37,840	1,065	99,751	9,559	178,042	98.23	3,201	14,000	—10,806	—12,456
Tennessee Central	293	172,679	86,372	270,573	64,669	67,535	794	125,083	6,287	264,367	97.71	6,205	5,450	755	—26,726
Terminal R. R. Ass'n of St. Louis	36	.....	3,805	353,003	66,815	52,024	775	154,384	3,816	281,039	79.61	71,963	37,617	34,299	9,487
Texarkana & Ft. Smith	81	105,046	15,118	139,958	13,923	29,474	42	34,122	8,658	85,964	61.42	53,994	2,939	51,043	—810
Texas & New Orleans	469	454,763	155,043	676,170	117,234	244,048	6,053	183,531	12,803	581,910	86.05	94,261	21,569	72,677	—107,044
Texas & Pacific	1,946	1,862,020	582,391	2,602,899	374,689	399,726	20,546	1,242,253	69,512	2,124,674	81.62	478,226	93,804	384,220	—223,262
Toledo & Ohio Central	435	578,856	61,785	739,464	125,681	196,908	5,097	419,566	21,163	770,773	105.51	—40,309	30,502	—70,811	—178,787
Toledo, Peoria & Western	247	80,039	35,443	133,392	31,036	36,872	2,362	74,987	5,411	150,668	112.95	—17,277	8,500	—25,776	—19,221
Toledo, St. Louis & Western	454	666,752	60,941	766,088	144,887	147,272	3,438	244,847	9,205	345,502	45.09	220,586	26,000	194,586	68,795
Trinity & Brazos Valley	368	74,549	14,458	93,178	43,428	46,884	1,597	61,310	7,389	160,608	172.36	—67,429	2,256	—69,685	—97,852
Ulster & Delaware	128	34,787	36,245	87,131	18,428	21,426	1,328	44,505	4,205	90,949	104.38	—3,818	4,600	—8,418	—3,931
Union Pacific	3,612	6,968,896	1,363,250	8,954,345	370,736	1,652,736	44,762	2,433,904	213,054	5,483,041	61.23	3,471,304	273,642	3,197,291	399,211
Union R. R. of Penn	35	.....	.....	613,871	21,872	103,837	399	310,477	7,680	444,265	72.37	169,605	5,443	164,162	221,939
Utah Railway	98	112,900	256	113,866	25,877	18,783	171	20,376	5,294	70,500	61.91	—43,366	2,881	40,483	.....
Vicksburg, Shreveport & Pacific	171	156,050	73,943	248,586	50,225	62,051	101,226	103,450	7,231	230,228	92.61	18,357	9,843	8,505	—96,270
Virginian	518	978,969	47,709	1,107,501	186,623	239,180	5,542	456,312	17,387	907,916	81.97	199,585	57,300	162,269	—155,229
Wabash	2,519	3,210,240	690,979	4,290,770	543,813	886,178	47,856	2,003,964	100,229	3,598,429	83.86	672,341	109,613	562,512	—310,972
Washington Southern	35	84,309	330,024	459,830	25,870	58,626	2,158	122,172	5,440	216,742	47.13	243,088	7,448	235,609	115,441
West Jersey & Seashore	359	339,306	412,311	827,664	270,064	196,180	6,579	520,328	21,504	1,018,604	123.06	—190,940	39,741	—230,892	151,342
Western Maryland	707	1,240,714	77,155	1,384,844	366,569	404,821	18,188	634,948	35,701	1,475,580	106.55	—90,737	43,200	—133,936	—417,424
Western Ry. of Alabama	133	155,186	71,901	242,232	22,833	50,246	2,531	80,951	6,339	165,862	68.47	76,369	7,000	69,369	42,540
Western Pacific	1,011	639,744	72,926	760,122	222,304	139,779	11,556	216,182	15,260	619,382	81.48	140,738	40,114	100,522	—72,267
Wheeling & Lake Erie	511	989,269	36,562	1,128,869	208,822	291,244	4,796	474,731	26,661	1,009,115	89.30	119,754	58,300	61,454	—248,679
Yazoo & Mississippi Valley	1,382	1,705,668	376,775	3,173,895	282,007	393,905	14,619	726,846	48,077	1,457,715	45.92	716,181	63,759	652,329	89,159
ELEVEN MONTHS OF CALENDAR YEAR 1918															
Alabama & Vicksburg	141	$1,416,655	$558,160	$2,208,248	$235,046	$529,565	$41,268	$913,928	$80,798	$1,817,884	82.32	$390,363	$122,278	$267,844	—$173,892
Alabama Great Southern	312	5,717,474	2,146,357	8,380,726	676,412	2,056,920	141,846	3,285,131	157,721	6,359,919	75.88	2,020,857	231,946	1,785,823	—130,453
Ann Arbor	295	2,488,019	510,790	3,215,738	538,578	696,322	46,843	1,497,197	102,618	2,887,377	89.78	328,367	144,100	183,390	—402,538
Arizona Eastern	37	3,330,912	506,668	4,083,942	739,466	576,561	24,314	1,094,862	173,201	2,659,303	65.11	1,424,639	187,151	1,236,531	—531,524
Atchison, Topeka & Santa Fe	8,644	103,881,052	33,827,723	148,372,063	18,495,704	30,409,851	1,548,267	50,211,694	2,579,121	102,978,603	69.41	45,393,459	6,148,028	39,226,688	—2,810,766
Atlanta & West Point	93	1,108,773	937,784	2,283,116	233,306	415,767	38,611	765,559	71,277	1,555,691	68.13	727,425	92,300	635,051	255,358
Atlanta, Birmingham & Southern	639	3,184,610	748,724	4,234,205	963,906	1,126,220	90,359	2,192,197	138,869	4,512,170	106.56	—277,965	172,700	—451,496	—384,207
*Atlantic & St. Lawrence	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Atlantic City	170	1,712,981	2,024,945	3,943,609	387,818	416,473	12,851	1,817,708	12,918	2,648,567	67.16	1,295,042	127,800	1,167,242	417,492
Atlantic Coast Line	4,818	33,023,299	14,867,088	51,372,447	6,112,848	9,956,698	576,327	20,990,624	1,056,709	38,982,441	75.70	12,480,000	2,295,000	10,178,841	908,127
Baltimore & Ohio	5,145	118,166,510	27,652,036	158,832,636	22,730,790	45,047,628	1,834,490	71,339,059	3,621,960	146,577,539	91.05	13,253,097	4,446,280	8,790,170	—15,932,637
Baltimore & Ohio Chicago Terminal	91	.....	4,897	1,645,426	276,881	572,164	12,049	1,452,764	32,634	2,428,836	147.61	—783,410	327,661	—1,111,183	—857,303
Baltimore, Chesapeake & Atlantic	87	817,669	431,996	1,301,306	117,125	345,713	12,877	759,950	33,045	1,268,710	97.49	32,596	33,127	—531	117,899
Bangor & Aroostook	632	3,458,885	735,826	4,425,604	728,142	1,078,638	42,680	1,796,321	139,205	3,833,949	86.63	591,657	195,085	396,385	—751,641
Beaumont, Sour Lake & Western	118	949,933	320,373	1,319,108	195,659	192,636	15,427	433,290	45,392	882,403	66.89	436,705	22,000	414,652	117,840

* Included in Grand Trunk Western.

REVENUES AND EXPENSES OF RAILWAYS

ELEVEN MONTHS OF CALENDAR YEAR 1918—CONTINUED

Name of road.	Average mileage operated during period.	Operating revenues			Maintenance of		Operating expenses				Operating ratio.	Net from railway operation.	Railway tax accruals.	Operating income (or loss).	Increase (or decr.) comp. with last year.
		Freight.	Passenger.	Total (inc. misc.)	Way and structures.	Equipment.	Traffic.	Transportation.	General.	Total.					
Belt. Ry. Co. of Chicago	31	.....	.....	$3,594,965	$377,932	$743,692	$4,236	$2,271,860	$83,194	$3,480,913	96.82	$114,052	$180,632	—$66,580	—$928,325
Bessemer & Lake Erie	208	$11,908,911	$357,308	12,554,752	1,107,759	3,178,480	121,646	4,063,293	212,655	8,466,529	67.44	4,088,224	230,186	3,858,036	355,723
Bingham & Garfield	36	3,059,652	43,756	3,189,969	440,737	507,487	14,658	633,317	52,194	1,688,599	52.93	1,501,370	109,836	1,391,534	—35,305
Birmingham Southern	27	1,098,871	10,383	1,313,942	101,407	243,446	10,268	527,804	43,144	926,069	70.48	387,873	58,317	329,556	329,585
Boston & Maine	2,258	39,858,652	17,398,752	64,176,642	8,495,910	12,410,566	431,483	33,468,784	1,659,198	56,858,627	88.59	7,138,015	1,937,386	5,380,629	—4,708,345
Buffalo, Rochester & Pitts	584	15,003,047	1,204,387	16,872,925	2,502,686	5,436,352	174,472	7,514,121	355,952	16,006,842	94.86	866,083	294,077	571,768	—1,961,783
Buffalo & Susquehanna	262	1,969,958	62,347	2,059,798	376,689	748,040	20,951	815,623	80,356	2,041,660	99.11	18,138	45,100	—26,962	—321,420
Canadian Pacific Lines in Maine	233	1,684,257	249,728	2,090,835	504,305	490,754	27,285	1,287,994	30,774	2,399,690	114.77	—248,855	116,500	—365,355	—578,988
Carolina, Clinchfield & Ohio	282	3,864,887	380,723	4,316,468	578,206	1,061,658	90,172	1,394,779	139,958	3,261,876	75.56	1,054,591	162,800	891,787	—574,578
Central of Georgia	1,918	11,831,829	5,249,753	18,790,848	2,830,264	3,704,575	347,467	7,182,773	571,491	14,641,868	77.92	4,148,980	707,608	3,435,806	—73,305
Central of New England	301	5,052,231	271,954	5,555,319	1,063,952	986,239	18,460	2,726,511	105,037	4,917,128	88.51	638,191	195,800	442,131	—1,108,401
Central of New Jersey	684	30,739,681	7,121,943	41,230,781	3,492,257	9,279,547	271,019	18,323,937	803,083	32,378,058	78.52	8,852,722	1,883,586	6,964,283	—1,865,988
Central Vermont	411	3,470,549	770,999	4,735,741	734,383	1,065,766	84,577	2,808,246	140,986	4,844,847	102.30	—109,106	190,997	—300,269	—836,898
Charleston & Western Carolina	343	1,928,918	631,113	2,696,075	393,573	427,492	45,827	1,192,801	56,925	2,116,618	78.51	579,457	99,000	480,296	—153,986
Chesapeake & Ohio Lines	2,482	50,462,889	12,216,901	66,631,160	8,719,415	14,793,574	453,250	23,773,412	1,134,912	49,197,399	73.83	17,433,782	1,745,000	15,686,450	2,189,527
Chicago & Alton	1,050	15,690,791	5,085,304	22,202,145	3,070,178	5,435,607	301,433	9,200,386	449,559	18,558,844	83.59	3,643,301	658,543	2,982,268	—1,643,458
Chicago & Eastern Illinois	1,131	19,165,481	3,624,005	24,527,096	3,092,283	7,811,983	254,847	9,772,940	579,761	21,584,284	88.00	2,942,812	860,758	2,078,072	—1,501,397
Chicago & Erie	269	8,213,873	833,752	9,902,470	1,589,552	1,770,583	149,518	4,944,188	245,780	8,729,280	88.15	1,173,191	357,668	815,477	—941,101
Chicago & North Western	8,090	30,777,237	25,490,734	116,619,479	17,354,375	24,059,490	891,856	52,398,733	2,405,752	97,737,971	83.81	18,881,508	4,930,000	13,925,741	—8,722,075
Chicago, Burlington & Quincy	9,373	95,142,504	25,694,541	131,533,451	17,938,836	26,991,836	1,125,449	51,143,720	3,089,060	101,603,639	17.24	29,929,811	5,415,865	24,513,916	—8,981,549
Chicago, Great Western	1,496	11,750,926	4,344,165	17,431,465	2,850,550	4,648,714	362,079	7,550,752	452,864	16,010,665	91.84	1,420,800	610,033	805,948	—2,037,900
Chicago, Indianapolis & Louisville	657	6,899,705	2,214,597	9,971,983	1,151,983	2,652,017	177,436	4,120,999	268,447	8,377,304	84.01	1,594,695	347,936	1,245,973	—918,774
Chicago Junction	12	.....	.....	3,096,606	557,193	489,956	6,535	2,260,840	78,776	3,393,321	109.58	—296,715	—23,013	—319,728	—633,142
Chicago, Milwaukee & St. Paul	10,305	87,289,780	21,303,388	120,559,910	15,562,810	35,131,334	1,154,108	54,874,877	2,743,011	109,646,103	90.94	10,913,808	5,671,295	5,198,096	—16,244,731
Chicago, Peoria & St. Louis	247	1,638,457	239,541	1,988,183	346,143	709,212	40,792	1,065,091	75,190	2,236,434	112.48	—248,250	83,403	—331,654	—583,715
Chicago, Rock Island & Gulf	474	2,819,357	993,197	4,065,467	569,227	631,800	79,666	1,549,209	119,157	2,967,992	72,98	1,097,475	141,102	955,431	—105,221
Chicago, Rock Island & Pacific	1,789	60,527,032	24,530,707	91,445,672	13,062,883	22,226,033	1,104,534	38,532,407	2,106,881	77,445,407	59.28	14,000,265	3,845,248	10,146,219	—6,407,049
Chicago, St. Paul, Minn., & Omaha	1,749	15,369,037	5,671,777	22,583,987	2,721,406	4,653,559	229,801	10,581,941	58,532	18,923,299	83.79	3,660,687	1,197,538	245,842	—1,640,566
Chicago, Terre Haute & Southeastern	374	4,288,664	231,872	4,614,463	576,154	1,564,226	40,326	1,661,004	93,374	3,968,604	86.00	645,859	159,500	486,264	—157,160
Cincinnati, Indianapolis & Western	321	2,127,891	485,208	2,868,440	440,463	851,006	67,942	1,371,289	120,795	2,854,936	99,52	13,504	113,049	—99,544	—487,682
Cincinnati, New Orleans & Tex. Pacific	337	9,339,290	3,692,145	13,923,756	1,286,241	4,132,796	245,103	5,381,112	271,549	11,374,271	81.68	2,549,485	419,500	2,129,219	—1,362,932
Cincinnati Northern	247	2,284,800	172,461	2,546,184	393,315	698,461	33,584	947,248	50,007	2,119,884	83.26	426,301	120,431	305,779	—218,750
Cleveland, Cincinnati, Chic. & St. Louis	2,392	45,638,897	13,926,465	65,093,855	6,555,645	12,599,848	819,232	25,547,774	1,087,496	46,962,583	72.14	18,130,971	3,297,814	14,826,134	3,291,888
Colorado & Southern	1,100	8,954,941	1,885,523	11,579,116	1,350,416	2,518,002	92,455	4,098,007	388,486	8,502,002	73.42	3,077,115	317,000	2,359,224	—724,942
Colorado & Wyoming	42	313,696	24,048	1,032,503	115,536	176,942	1,877	449,078	47,009	700,441	67.83	242,063	43,444	198,609	—184,139
Cripple Creek & Colorado Springs	116	727,880	107,551	855,288	78,388	109,935	10,920	285,193	32,191	516,627	60.40	338,661	80,060	258,591	—229,249
Cumberland Valley	163	4,308,510	667,510	5,321,515	495,822	797,622	57,760	1,826,672	127,731	5,310,783	62.21	2,010,732	100,859	1,909,234	—44,199
Delaware & Hudson Co., R. R. Dept.	902	27,826,098	2,620,175	32,188,160	3,355,681	8,668,332	238,424	15,221,074	966,196	28,631,712	89.94	3,556,448	790,371	2,764,409	—2,858,231
Delaware, Lackawanna & Western	959	45,917,673	10,185,388	62,730,353	4,830,936	12,038,537	617,422	26,002,702	1,112,271	45,093,866	71.88	17,636,487	2,581,266	15,035,950	—1,179,406
Denver & Rio Grande	2,607	22,257,823	4,579,673	22,482,682	4,127,661	7,287,716	250,169	10,174,510	639,194	22,837,916	80.18	5,644,766	1,135,000	4,506,658	—2,645,435
Denver & Salt Lake	255	1,637,855	286,744	1,993,650	680,315	777,162	10,764	1,148,580	46,236	2,663,058	133.57	—669,407	99,000	—768,417	—722,614
Detroit & Mackinac	381	1,008,064	293,990	1,399,193	252,226	379,069	25,895	628,885	61,135	1,347,213	96.28	49,981	89,444	—41,045	—210,912
Detroit & Toledo Shore Line	61	1,764,475	.....	1,794,797	132,262	215,777	16,795	599,373	43,237	1,007,275	56.12	787,522	121,880	665,632	—137,058
Detroit, Toledo & Ironton	460	2,783,141	131,085	3,090,747	652,142	900,978	43,218	1,679,547	128,651	3,404,537	110.15	—313,790	97,900	—411,860	—618,797
Duluth & Iron Range	284	8,433,954	208,720	8,859,779	1,104,004	1,033,520	8,146	2,141,322	144,561	4,431,564	50.02	4,428,214	508,360	3,919,316	1,193,320
Duluth, Missabe & Northern	413	20,047,862	399,227	21,303,126	1,760,798	1,579,186	31,430	3,624,758	471,933	7,483,383	35.13	13,819,743	1,322,613	12,497,130	5,058,905
Duluth, South Shore & Atlantic	601	3,275,919	927,439	4,490,929	896,509	676,995	72,740	2,102,884	99,643	3,894,489	86.71	596,440	218,271	378,144	—268,735
Duluth, Winnipeg & Pacific	175	1,280,394	242,875	1,564,080	235,431	263,262	31,151	755,971	69,107	1,357,577	86.71	206,503	87,725	118,770	—268,460
East St. Louis Connecting	3	.....	.....	1,038,035	136,178	234,133	3,323	793,693	44,428	1,212,159	116.76	—174,123	24,269	—198,394	442,247
El Paso & Southwestern Co	1,028	10,808,088	2,178,447	13,568,195	1,284,146	2,250,523	146,106	3,820,801	326,949	7,908,578	58.28	5,659,617	952,016	4,707,313	—601,377
Elgin, Joliet & Eastern	806	16,002,879	123	18,647,486	1,650,843	4,657,054	74,523	6,792,718	272,011	13,442,773	72.08	5,204,713	558,501	4,646,209	851,214
Erie	1,989	61,459,196	10,603,860	79,679,001	10,198,137	25,815,281	793,381	40,187,245	1,908,596	79,341,795	99.57	338,206	2,209,708	—1,877,270	—10,151,705
Florida East Coast	764	4,611,440	2,295,742	8,019,537	1,055,623	1,370,194	102,784	3,417,506	194,678	6,039,033	75.30	1,980,504	396,863	1,581,780	—1,309,541
Fonda, Johnstown & Gloversville	88	324,625	650,313	1,023,981	105,860	88,664	6,845	354,378	75,050	630,798	61.60	393,183	52,300	340,883	—40,745
Ft. Smith & Western R. R. Co	253	812,941	272,476	1,175,197	187,183	311,731	33,807	420,543	62,747	1,021,038	86.88	154,159	51,000	103,065	—46,112
Fort Worth & Denver City	454	5,045,542	1,810,088	7,150,198	706,423	1,620,936	52,361	2,846,769	250,793	5,505,848	77.00	1,644,350	229,690	1,414,465	—654,831
Fort Worth & Rio Grande	235	629,734	350,615	1,050,974	196,424	244,553	19,367	489,131	55,392	1,004,867	95.61	46,107	33,281	12,158	—66,707
Galveston, Harrisburgh & San Antonio	1,370	13,496,261	4,727,113	19,423,431	2,130,518	3,437,762	268,678	7,154,951	568,763	13,632,839	70.19	5,790,592	618,465	5,168,901	—1,130,151
Galveston Wharf	13	.....	.....	938,123	12,230	12,985	3,757	323,031	6,248	628,357	66.98	309,766	133,300	176,465	—125,210
Georgia	328	3,820,436	1,862,605	6,078,975	452,490	811,373	83,791	2,392,782	150,646	3,893,018	64.04	2,185,957	67,113	2,116,698	940,539
Georgia, Southern & Florida	402	1,963,538	977,856	3,273,228	496,329	854,776	52,882	1,394,413	108,277	2,921,735	89.26	351,493	152,131	198,504	—193,137
Grand Rapids & Indiana	569	4,435,687	1,658,611	6,649,119	864,758	1,633,506	108,726	3,013,357	224,725	5,862,040	88.16	787,079	261,146	525,095	—412,191
Grand Trunk Western	1,019	13,179,829	2,482,552	17,165,004	2,344,488	4,413,565	268,137	8,470,044	457,651	16,011,280	93.27	1,153,723	582,933	566,682	—975,461
Great Northern	8,258	69,219,317	14,307,657	90,812,866	15,604,251	16,890,214	743,724	38,654,351	1,575,564	74,149,035	81.65	16,665,831	5,574,866	11,083,161	—10,739,227
Gulf & Ship Island	309	1,625,250	552,728	2,365,580	470,314	418,149	40,251	192,920	108,133	1,831,311	77.41	534,269	114,164	419,600	—212,321
Gulf, Colorado & Santa Fe	1,935	11,923,721	4,467,172	17,454,600	3,046,548	3,022,294	218,126	6,294,324	563,299	13,084,082	74.96	4,370,518	766,357	3,600,133	—320,013
Gulf, Mobile & Northern	405	1,708,022	378,033	2,198,940	378,444	494,737	50,177	889,752	100,952	1,914,157	87.04	284,782	124,227	,160,528	—431,782
Hocking Valley	349	10,784,945	941,666	12,456,617	1,366,187	3,421,718	78,152	4,564,058	227,770	9,653,679	61.44	2,862,938	564,225	2,233,599	—430,770
Houston, East & West Texas	190	1,336,053	442,615	1,891,187	274,586	253,354	17,708	806,372	37,727	1,389,853	73.49	501,536	69,816	631,322	—169,591

† Included in Grand Trunk Western. ‡ Included in Baltimore & Ohio R. R. ¶ Now included in Grand Trunk Western.

War Contract Legislation

Proposed legislation to validate the so-called informal war contracts amounting to approximately $1,750,000 is still in a shape unsatisfactory to the various committees of business men representing the manufacturers of war work material who have been in Washington in the effort to have Congress approve a measure which would at an early date supply a remedy for the uncertain conditions now existing. The Senate committee on military affairs has reported, as a substitute for the Dent bill passed by the House, the War Industries Board bill, but with a section giving the right of appeal from the decisions of the War Department to both the contractor interested and to the Department of Justice to a claims appeals commission. This, according to statements issued by Joseph H. DeFrees, chairman of the War Service Executive Committee, and by H. H. Dinneen, secretary of the Association of Manufacturers of War Materials, would open the way not only to delay in payment on informal contracts, but on formal contracts as well, of which the War Department now has full jurisdiction and which are being settled.

"Our interest," said Mr. Dinneen, "is in having a reasonably clear and adequate bill passed and passed quickly. The business of this country has no fear of any kind of an investigation, but it is unwilling that relief which is now imperative should be fettered with cumbersome provisions. Labor is going out by the thousand in all of the cities which rallied to the support of the government in the four Liberty Loans and within the next ten days thousands more will go out in these centers. Millions upon millions of dollars are tied up in war work. The government does not want war products, and in the present state of affairs the government cannot in many instances settle with contractors, hence the contractors cannot get out of war work for which the government has no use and cannot return to peace work. The consequence will be that labor will necessarily be unemployed until government adjustment is possible."

Revenues and Expenses for November

Railway operating expenses for the 11 months ending November 30, 1918, were over a billion dollars greater than for the corresponding period of 1917, according to the monthly bulletin of the Interstate Commerce Commission.

Railway operating income in November again fell short of the so-called standard return guaranteed to the railroads by the government, amounting to $60,012,222, or $258 per mile, as compared with $78,914,790, or $339 per mile in November, 1917, and $378 per mile, the average for the month of November in the test years ending with June of 1915, 1916 and 1917. Operating revenues increased $82,000,000, while expenses increased $102,000,000, partly on account of back payments of increased wages.

For the 11 months ending November 30, the operating income was $688,442,509, or $253,000,000 less than for the corresponding period of 1917, and the net operating income was $662,407,625, or $248,000,000 less than for 1917. While the operating revenues for the period increased $760,000,000, the operating expenses increased $1,005,000,000, while taxes increased $8,000,000. The commission's compilations, covering 180 Class I roads and 15 switching and terminal companies, are as shown in the table.

Central Railway Club

At the January 10 meeting of the Central Railway Club, V. C. Randolph, fuel supervisor, United States Railroad Administration, presented a paper on fuel conservation, showing moving pictures of good practices in firing and methods to be avoided, which were taken on the Minneapolis, St. Paul & Sault Ste. Marie.

Frank C. Pickard, master mechanic of the Delaware, Lackawanna & Western, was elected president of the club, and in commenting on the railroad situation he called attention to the work done by the government controlled railroads during the past year. There were 8,700,000 troops moved, with a maximum of 1,147,013 during the month of July. Throughout the year 20,897 troop trains, averaging 12 cars per train, were handled. In speaking of finding positions for the discharged military men he said: "There are a lot of people who have been pessimistic about finding employment for the returning soldiers, but personally I do not feel that way. Prior to the war 1,200,000 emigrants from European countries were brought into this country and our great industrial system absorbed them with hardly a ripple on the surface. We have got to do what we can in our local communities to start building. But little has been done during the past four years because of the material and the men which were needed elsewhere. We have not had time to repair the machines in our shops and our buildings have been neglected—all that will tend to create employment. Think of what the establishment of the eight-hour day will mean. That alone will

RAILWAY REVENUES AND EXPENSES

Item	November				Eleven months ended November 30			
	Amount		Per mile of road operated		Amount		Per mile of road operated	
	1918	1917	1918	1917	1918	1917	1918	1917
1—Average number miles operated	232,554.00	232,990.09	.....	.....	233,166.22	232,551.86	.....	.....
REVENUES:	Dollars	Dollars	Dollars	Dollars	Dollars	Dollars	Dollars	Dollars
2—Freight	321,800,828	254,560,948	1,384	1,092	3,141,024,307	2,612,463,804	13,471	11,234
3—Passenger	81,674,106	70,133,132	351	301	938,631,613	746,231,429	4,025	3,209
4—Mail	4,244,238	4,510,568	18	19	48,894,646	54,278,193	210	233
5—Express	10,685,847	9,033,837	46	40	113,231,264	96,657,267	486	416
6—All other transportation	10,329,041	9,680,770	44	41	113,944,412	105,652,382	489	454
7—Incidental	10,582,086	9,099,165	46	39	113,612,264	95,608,126	487	411
8—Joint facility—Cr.	591,732	411,261	3	2	5,432,870	3,937,231	23	17
9—Joint facility—Dr.	136,897	156,055	1	1	1,596,896	1,461,388	7	6
10—Railway operating revenues	439,770,981	357,273,626	1,891	1,533	4,473,174,480	3,713,367,044	19,184	15,968
EXPENSES:								
11—Maintenance of way and structures	62,442,702	38,707,203	269	166	584,334,115	421,925,611	2,506	1,814
12—Maintenance of equipment	101,886,188	65,100,019	438	279	999,251,659	630,128,139	4,286	2,710
13—Traffic	3,310,530	5,306,550	14	23	45,343,729	59,531,990	195	256
14—Transportation	183,473,652	142,138,460	789	610	1,850,511,350	1,383,587,362	7,936	5,949
15—Miscellaneous operations	3,265,945	2,920,115	14	13	35,549,848	30,874,641	152	133
16—General	9,891,832	8,286,864	43	35	101,994,264	88,058,679	437	379
17—Transportation for investment—Cr.	451,756	720,033	2	3	5,140,989	7,187,310	22	31
18—Railway operating expenses	363,819,093	261,739,178	1,565	1,123	3,611,843,976	2,606,919,112	15,490	11,210
19—Net revenue from railway operations	75,951,888	95,534,448	326	410	861,330,504	1,106,447,932	3,694	4,758
20—Railway tax accruals (excluding "War Taxes")	15,907,573	16,586,098	68	71	172,339,663	164,361,496	739	707
21—Uncollectible railway revenues	32,093	33,560	...	...	548,332	584,926	2	2
22—Railway operating income	60,012,222	78,914,790	258	339	688,442,509	941,501,510	2,953	4,049
23—Equipment rents	*1,626,811	*992,910	*7	*4	*12,948,556	*18,693,847	*56	*80
24—Joint facility rents (Dr. Bal.)	1,262,076	1,157,132	5	5	13,086,328	12,450,578	56	54
25—Net of items 22, 23 and 24	57,123,335	76,764,748	246	330	662,407,625	910,357,085	2,841	3,915
26—Ratio of operating expenses to operating revenues, per cent.	82.73	73.26	.....	.....	80.74	70.20	.....	.....

* Debit item.

take thousands of men. One large system recently advertised for 8,500 men."

In addition to an Interchange Rules Committee of the club he suggested the formulation of a Locomotive Operation Committee, to be composed of road foremen of engines, or supervisors of locomotive operation as they are sometimes called; a Locomotive Shop Committee, to be composed of shop superintendents, general foremen, erecting shop foremen, machine foremen and gang foremen; a Car Shop Committee, composed of similar men, and a Transportation Committee, to be composed of superintendents, assistants, trainmasters, etc.

The report of the secretary-treasurer showed a balance of $1,360.58, of which $500 is invested in Liberty Bonds. The total number of members January 1 was 702, which with 74 new members added at the January meeting, makes a total of 776.

The following officers were elected for the ensuing year: President, Frank C. Pickard, master mechanic, D. L. & W.; vice-presidents, H. T. Malcolmson, superintendent, T. H. & B.; L. C. Fitzgerald, shop superintendent, Erie, and M. W. Hassett, master mechanic, New York Central. H. E. Myers, master mechanic, Lehigh Valley, was elected to the executive committee. The retiring president, W. H. Sitterly, general car inspector, Pennsylvania, was added to the list of past presidents, who are also members of the executive committee.

Western Society of Engineers Elects Officers

The annual dinner of the Western Society of Engineers was held in the Hotel Sherman, Chicago, on January 22. At this meeting the announcement was made of the election of A. S. Baldwin, vice-president of the Illinois Central, as president of the society; Kempster B. Miller, consulting engineer, first vice-president; William M. Kinney, general manager of the Portland Cement Association, second vice-president; J. L. Hecht, mechanical engineer of the Public Service Company of Northern Illinois, third vice-president, and C. R. Dart, chief bridge engineer of the Sanitary District of Chicago, treasurer, and E. T. Howson, western editor of the *Railway Age*, trustee. The election of the following chairmen of sections was also announced: Electrical Engineering Section, J. R. Cravath, consulting engineer; Bridge and Structural Engineering Section, G. A. Haggander, bridge engineer, Chicago, Burlington & Quincy; Hydraulic, Sanitary and Municipal Engineering Section, Linn White, chief engineer of the South Park board, Chicago; Mechanical Engineering Section, Fred J. Postel, supervising engineer of the Department of Public Works and Buildings of the state of Illinois, and Gas Engineering Section, H. H. Clark, engineer of the Public Service Company of Northern Illinois.

Railway Business Association

President Alba B. Johnson of the Railway Business Association has announced the completion of the general executive committee for the current year. The committee consists of the president and vice-presidents, who were elected at the annual meeting and have already been announced, and 27 executive members, a third of whose terms expire annually. The nine appointments for three years ending January, 1922, are as follows:

W. E. Clow, president, James B. Clow & Sons, Chicago.

W. H. Cottingham, president, Sherwin-Williams Co. Cleveland.

Howard A. Gray, manager, railroad sales department, Joseph T. Ryerson & Son, Chicago.

E. J. Kearney, secretary and treasurer, Kearney & Trecker Co., Milwaukee.

E. B. Leigh, president, Chicago Railway Equipment Co., Chicago.

Herbert I. Lord, Detroit Lubricator Co., Detroit.

Burton W. Mudge, president, Mudge & Co., Chicago.

W. G. Pearce, president, American Brake Shoe & Foundry Co., New York.

W. E. Sharp, president, Grip Nut Co., Chicago.

The appointments of the standing committees will be announced later.

Traffic News

The Southern Pine Association will hold its annual meeting at the Hotel Grunewald, New Orleans, La., on February 25 and 26.

The Panama Railroad Company has issued Freight Tariff No. 30 which gives class and commodity rates from New York to Central American and Mexican ports.

The Traffic Club of Chicago held a smoker and vaudeville in its club rooms at the La Salle Hotel on January 23. Samuel O. Dunn, editor of the *Railway Age*, who recently returned from Europe, delivered an address concerning his trip abroad, which dealt largely with European railroad conditions.

More Sleeping-Car Lines to the South

Seven more of the sleeping car lines to the South are to be at once restored; these are in addition to the 15 through lines restored on January 1. The new lines are: Pennsylvania Railroad, leaving New York at 8:08 a. m., a car to Key West via the Atlantic Coast Line. Pennsylvania Railroad, leaving New York at 2:04 p. m., a car between New York and Pinehurst via the Seaboard Air Line. Additional cars between New York and Palm Beach via the Seaboard Air Line, as well as cars between New York and Augusta, Aiken and Asheville via the Southern Railroad, will leave New York at 1:12 p. m. An additional car will also be run between New York and Atlanta via the Southern Railroad, leaving New York at 3:38 p. m. Corresponding additional sleeping car lines will be run northward.

The cars from White Sulphur Springs and Hot Springs over the Chesapeake & Ohio, and the New Orleans car via the Southern and Norfolk & Western which now run north of Washington over the Baltimore & Ohio are to be transferred to the Pennsylvania Railroad train leaving Washington at 9:05 a. m.

Entraining and Detraining (With Abbreviated Trains) in New Jersey

Tight skirts on women passengers have upset schedules on the railroads only slightly less than a blizzard. The Pennsylvania, which reduces all that has to do with the operation of trains to a scientific accuracy, has found that since the women have begun wearing tight skirts the average train stop is seventeen seconds longer than when skirts were short and loose.

Taking or leaving a train anywhere is no easy task for the tight-skirted woman, but in New Jersey it is serious business, for trains are equipped largely with old Pullmans converted into day coaches. Formerly a porter put a stool under the bottom step, but there is no stool or porter now and the women have to fairly throw themselves into the arms of the brakemen in detraining. In entraining the situation is even worse.—*Philadelphia North American.*

City Drays Only 10 Per Cent Efficient

Ten trucks are needed to do the work of one in lower Manhattan, thereby overcrowding the streets tenfold. This is shown by a "time study" made by the engineering staff of the New York-New Jersey Port and Harbor Development Commission. A two-horse truck operating from a lower West Side dry goods store, delivering both from and to the store, was taken as typical. An engineer for the commission stayed with this truck six days, recording routes and distances covered, loading on each trip, time consumed in transit, loading, unloading and waiting in line at piers and other points.

During the week the truck often carried light loads or traveled empty; waited at the store for orders at piers for the

chance to load or unload; made repeated trips to the same point without carrying full loads; and on the streets was constantly held up by other trucks similarly underworked. Its loads while it was loaded averaged 60 per cent of capacity, but half the time it moved empty. It traveled 28 miles in all, making only one mile the fourth day. Of 46½ hours it was out it was idle 22½ hours, loading or unloading 11½ hours and moving only 12½ hours.

This means, says the report, that three trucks fully loaded all the time could with the same delay have done as much as ten were doing. With the idle time eliminated and loading and unloading time reduced to the lowest terms, one truck could do the work of the three. If there are 1,000 trucks of this type and 900 are unnecessary, the commission estimates that the annual waste is about $2,000,000.—*New York Journal of Commerce.*

New Body To Promote Foreign Trade

The Mississippi Valley Foreign Trade Convention, held at New Orleans, La., on the 13th and 14th, as announced in the *Railway Age* of January 10, resulted in the organization of the Mississippi Valley Association, the first annual meeting of which is scheduled to take place at Chicago in April in conjunction with the convention of the National Foreign Trade Council. The new association, which represents manufacturing, trade and banking interests in 20 states which constitute the heart of this country, proposes to advance the welfare of the Mississippi Valley in all matters pertaining to commerce, industry and finance, with an aggressive program for the development of foreign trade as a primary objective. It also has as one of its main purposes the development of domestic trade along north and south lines, both water and rail, to relieve the congestion of east-and-west avenues of traffic.

The officers of the association, elected to serve until the first annual meeting in Chicago, are: President, John M. Parker, Federal Food Administrator, New Orleans; treasurer, R. S. Hecht, president of the Hibernian Bank of New Orleans, and secretary, A. E. Pradillo, foreign trade manager of the New Orleans Association of Commerce. Eleven committees were appointed to carry out the purposes of the organization.

In its declaration of principles, the Mississippi Valley Association recommended the adjustment of freight relationships, parities, differentials and divisions to permit nature's economics to assist in the development of the north-and-south channels of trade and the use of the Gulf ports wherever they can best serve the needs of the Valley. To this end the Federal Government was petitioned to assign vessels to give adequate and regular service between Gulf ports and markets of the Valley and to adjust ocean freight rates to and from Mexico, the West Indies and other Latin American countries so as to give shippers through gulf ports the relative rates to which their geographical position naturally entitles them. The merchant marine, Mississippi Valley waterways development, the establishment of free ports, and the extension of the Federal reserve banking system in foreign countries in the interests of foreign trade were also endorsed.

ARMOUR REFRIGERATOR CARS IN BRAZIL.—The Armour plant at Santa Anna, Brazil, for which Montevideo is to serve as a shipping point, is already in operation, and will, when completed, have a capacity of from 1,000 to 1,500 head of cattle per day. For the transportation of its products to Montevideo a contract has been signed with the Central Uruguay Railway, which fixes rates for 10 years. Meat will be carried in 75 refrigerator cars, which are to be built at the expense of Armour & Co. in the railway shops at Peñarol, near Montevideo. Standardized parts for these cars will be imported from the United States. The cars are to be the property of the railway, which will gradually amortize their cost to the Armour company during a period of 10 years. The run from the Santa Anna plant to the cold storage plant at Montevideo will require about 17 hours. Tracks will be laid to the Montevideo plant and meat will be unloaded directly from railway cars to the plant. The latter is, in turn, situated at the dock, so that meat can be loaded directly on ocean steamers.—*Commerce Reports.*

Commission and Court News

Interstate Commerce Commission

The Commission held a hearing last week on the question as to whether the net operating income of the Pullman Company to be certified by the Interstate Commerce Commission as a basis for its income during the period of federal control should include an item of $333,807, representing the average income of the Northern Pacific from sleeping cars operated under a partnership agreement by the railroad and the Pullman Company. The cars were sold to the Pullman Company on April 1, 1917. The Pullman Company claims extra compensation because of its ownership of property whose earnings were not included in its income during the test period. This also involved a question whether there should be a corresponding reduction in the compensation of the Northern Pacific, which has already been fixed and the contract signed. The Northern Pacific argued that whatever the decision on the Pullman Company's claim, its own compensation should not be reduced because, while its compensation represents the earnings of property not now held by the road, the commission cannot make a correction in its net income which was properly accounted for, and because it had not been allowed its claim for extra compensation amounting to seven million dollars for property acquired since the expiration of the test period.

Court News

The Supreme Court of South Dakota has issued a temporary injunction prohibiting the American Railway Express Company from putting into effect new express rates ordered by the Director General of Railroads.

Application of General Orders Limited

In an opinion delivered recently by Judge D. J. Munger, in the United States district court at Lincoln, Neb., it was held that the application of General Orders 18 and 18-A of the director general of railroads was limited by Section 10 of the Federal Control Act, which provides that the laws then existing governing the relationship of the railways as common carriers would remain in effect except when they were inconsistent with the terms of that act or of other acts applicable to federal control or with an order of the president.

The plaintiff, in the case decided by Judge Munger, was injured on the Chicago, Rock Island & Pacific in the state of Kansas and brought suit for damages against the railway company in the state of Nebraska. General Orders 18 and 18-A provide that all suits against carriers while under federal control must be brought in the county or district where the plaintiff resided at the time of the accrual of the cause of action or in the county or district where the cause of action arose. Inasmuch as the plaintiff resided in Kansas at the time of the accident and his injuries were received in that state, the defendant argued that his suit should have been brought there. The opinion of the court, however, was that orders of the president relating to the carriers' duties and liabilities other than as common carriers, were not authorized by Section 10 of the Federal Control Act. The cause of action in the case at hand was not one arising against the railroad company as a common carrier but involved laws relating to it merely as a corporation.

The opinion of Judge Munger is contrary to that of United States Judge Jacob Trieber, of the Eastern District of Arkansas, sitting in the Eastern Division of the Eastern District of Missouri, and delivered some months ago. In this case, the facts of which are similar to those of the one argued before Judge Munger, it was held that there is nothing in the general orders of the director general which deprives the plaintiff of his right to maintain an action against the defendant, but for reasons of public necessity in a time of war, restrictions on the manner of bringing suit were made which, in the opinion of the president and the director general, were necessary to prevent seri-

ous interference with the physical operation of the railroads in the prosecution of the war. He stated that the act and the general orders may well be sustained upon the ground that the welfare of the people is the paramount law.—Friesen v. Chicago, Rock Island & Pacific Railway Company.

Crossing Accidents—Contributory Negligence

The South Carolina Supreme Court holds that where it appeared that an automobilist would have run into the side of a train through his own fault regardless of whether there were gates or a watchman at a crossing, he cannot recover, even though the railroad was negligent in not having a watchman or gates.—Gilson v. Atlantic Coast Line (S. Car.) 96 S. E. 519. Decided July 20, 1918.

Claim for Damages to Shipments

The Illinois Appellate Division holds that the receipt and investigation of a claim for damages by a railroad after the expiration of the four months after delivery limited in the bill of lading for presenting it does not constitute a waiver of the defense afforded by the provision, especially where the claim does not give the date when the shipment was received. —Pennsylvania v. Piorwaty, 207 Ill. App. 176.

United States Supreme Court

The Supreme Court of the United States on January 20, in a decision in a suit begun by the Baltimore & Ohio, held that the Interstate Commerce law, as amended in 1910, does not prohibit the free exchange of utility service between telegraph and telephone companies and railroad companies, even where service from one line to points on another is involved.

The decision sustains the lower court in setting aside Interstate Commerce Commission rulings of March 28, 1916, which held that such service must be paid for by each party on the basis of the published tariff rates.

The proceedings originally were instituted by the Baltimore & Ohio against the Western Union Telegraph Company; the Chicago, Great Western against the Postal Telegraph and Cable Company, and the Postal Company against the Tonopah & Tidewater Railroad, to compel compliance with the provisions of certain contracts which involved exchange of service which the commission had prohibited.

Application of Carmack Amendment Act

In June, 1900, the Missouri, Kansas & Texas issued bills of lading to shipper's order covering 27 carloads of grain to be shipped from Kansas City, Missouri, to Galveston. No grain was in fact delivered to it for shipment; but before the fraud was discovered, the alleged shipper transferred the bills of lading to Hutchings, Sealy & Co., who made advances on them. The advances were not fully repaid, and in 1905 they brought suit against the railroad in a state district court of Kansas. The railroad defended on the ground that since the bills of lading had been delivered in Missouri, the transaction was governed by the Missouri law and that under that law the railroad was not liable. For more than eight years the record in the case contained no suggestion of a federal question, the case having meanwhile been passed upon twice by the Supreme Court of Kansas (M., K. & T. v. Hutchings, 78 Kan. 758; Hutchings v. M., K. & T., 84 Kan. 479). Thereafter, in 1913, the railroad presented the claim that the transaction was governed by the federal law; and that, by it, the defendant was not liable. The Supreme Court of Kansas, apparently as a matter of state practice, declared that the contention came too late to be considered; and entered judgment for the plaintiff (98 Kan. 225).

The Supreme Court of the United States holds that the federal question was not seasonably raised; and that it is also unsubstantial. Prior to the Carmack Amendment the rights of the parties were governed by state law; and the Carmack Amendment does not apply, as the cause of action, if any, arose six years before the passage of that act.—M., K. & T. v. Sealy. Decided January 7, 1919.

Foreign Railway News

The Jamaica legislature is reported to have voted **$250,000** for the purchase of railway and other material in France and elsewhere, which may be available as a result of the cessation of the war.

The Chilean Congress has voted $60,000 for the preparation of plans for the construction of an extension of the Transandine Railway from its terminus at Los Andes to Santiago, which will greatly shorten the distance between these two places.

Figures recently compiled by the British Department of Labor show that there were in Great Britain at the end of 1917 seven unions in the railway transport field. These had a total membership at that time of 498,263, showing an increase of 17.2 per cent over the figure of 424,960 at the end of 1916.

Japanese iron and steel manufacturing stimulated by the war (says a Japanese contemporary) made recently a tremendous progress and development. The necessity of self-support in iron and steel is now completely realized by both the government and the people, and the government giving material assistance encourages the rise of steel industry in Japan. According to the report of the Department of Agriculture and Commerce the private organizations engaged in iron and steel manufacturing at the end of June, 1918, is figured at 247, and the capital invested is estimated to be about $175,000,000. This means that since the outbreak of war capital investment in the Japanese steel industry is more than tripled.

Railway-owned freight cars in the United Kingdom were, before they were put into common user, as it is called, returned to their owners in due course; records being taken by the Railway Clearing House as they went off and returned to the owning line. Under common user this became unnecessary, as the freight cars are somewhere or other in the country. With the introduction of the English Channel train ferry, freight cars go to France, whence they may not return. So that there may be no loss, the number of every such car is taken by the Clearing House, also particulars of the consignment and to whom addressed. No effort is, however, made to follow its journeys in France; it suffices to record its return when it comes back.

Railway matters in what was once Austria-Hungary and is now no one precisely knows what may be most simply described as confusion worse confounded, says a correspondent writing from Berne, Switzerland, to the Railway Gazette (London). A record of accidents, robberies, more and more restricted time-tables, and a rolling stock and officials obviously incapable of performing the tasks devolving upon them. In Hungary matters seem no better than in Austria, and owing to the crowds of returning soldiers, repatriating themselves apparently without any sort of order being maintained or anyone being present to say when a train is carrying its full complement of travelers and no more persons must go on board it, an already very bad state of things has become of late still worse.

The State Railways of Siam are suffering from a severe shortage of rolling stock and railway construction material on both the Northern and Southern lines, says a recent American consular report from Bangkok. On each of these lines passenger fares were raised 20 per cent., due to the advance in prices of railway material received from abroad and to increased maintenance expenses. Imports of this material in Siam have almost ceased during the last two years. The official customs returns for the fiscal year ended March 31, 1918, quoted by the consul show that Siam imported "railway material" during the year to the value of only $11,411, as compared with $137,183 in the year ended March 31, 1917, and $590,464 in 1913-14. "Railway cars, trucks, etc.,"

were imported to the value of $24,964 in 1917-18; $92,487 in 1916-17, and $84,873 in 1913-14. Locomotives were not separately shown.

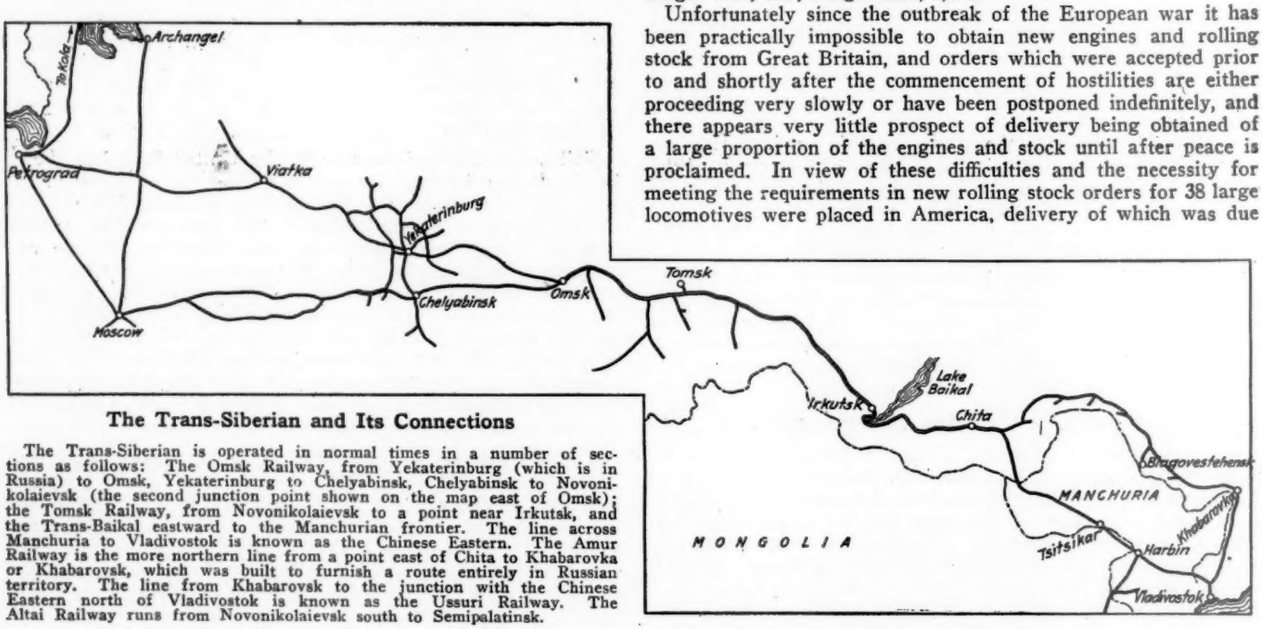
Railway Strike in Cuba

Telegraphers, conductors, agents and brakemen of the United Railways of Havana, Cuba, struck on January 16 to enforce demands for increased wages and betterment of working conditions, but returned to work Wednesday of this week, following intervention of President Menocal. News despatches say that the men received an increase in wages and recognition of their union.

Allied Control of the Trans-Siberian

The agreement for Allied control of the Trans-Siberian Railway, says a despatch from Vladivostok, dated Monday, gives the Americans control of the line from Porgranichana to Omsk, a distance of 3,000 miles; the British will have charge of the line from Omsk to the fighting front; the French will control the Khabarovsk line and the Japanese the line from Blagovieistchensk to Chita.

The administrative positions are to be filled by Russians and Americans in equal numbers. There are to be Russians only on the working staff. John F. Stevens, head of the American Railway Commission to Russia, is to be chief administrator of the railway, with the Russian General Horvath as co-director. Americans are to guard the line. Cars and engines are being supplied from the United States, the despatch continues. Great workshops are being opened in Vladivostok, and every effort is to be made to speed up operations.



The Trans-Siberian and Its Connections

The Trans-Siberian is operated in normal times in a number of sections as follows: The Omsk Railway, from Yekaterinburg (which is in Russia) to Omsk, Yekaterinburg to Chelyabinsk, Chelyabinsk to Novonikolaievsk (the second junction point shown on the map east of Omsk); the Tomsk Railway, from Novonikolaievsk to a point near Irkutsk, and the Trans-Baikal eastward to the Manchurian frontier. The line across Manchuria to Vladivostok is known as the Chinese Eastern. The Amur Railway is the more northern line from a point east of Chita to Khabarovka or Khabarovsk, which was built to furnish a route entirely in Russian territory. The line from Khabarovsk to the junction with the Chinese Eastern north of Vladivostok is known as the Ussuri Railway. The Altai Railway runs from Novonikolaievsk south to Semipalatinsk.

Associated Press despatches from Tokio on Tuesday, also, indicate a degree of dissatisfaction with the arrangement on the part of the Japanese. In the lower house of the Japanese parliament today, the despatch said, the opposition interpellated the government concerning control of the railways in Siberia. The interpellation asserted that Japan was the leading power in the Orient and that joint control of the Chinese Eastern and Trans-Siberian Railways disregards Japan's special position, and that practical control of the railways by Americans affronted the dignity of Japan, considering Japan's greater military effort in Siberia.

Viscount Uchida, the foreign minister, in reply, said the question of control of the railways was yet undecided and it was impossible to publish details. He added that the attitude of the United States throughout the negotiations was most friendly toward Japan.

The Locomotive Problem in South Africa

JOHANNESBURG.

One of the outstanding difficulties the Administration of the South African Railways has had to meet as a result of the war has been that of motive power. The difficulty, under war conditions, of keeping locomotives in order has been especially acute in a country like South Africa, which has been accustomed to depend largely on oversea sources for its rolling stock and locomotives. However, by improving water supplies, and by resorting to various expedients, the Administration has succeeded in keeping about 75 per cent of its locomotives in commission.

The following figures showing the number of new engines, freight and passenger cars which have been placed in service on the South African railways from January 1, 1914, to October 31, 1917, will indicate what steps the Administration took to keep up its supply of equipment.

	Locomotives	Passenger train cars	Freight train cars
1914	95	155	1,193
1915	94	85	1,628
1916	15	67	1,132
1917	19	18	194

The following engines and cars were still on order or authorized on October 31, 1917: Locomotives, 143; tenders, 24; passenger cars, 238; freight cars, 2,471.

Unfortunately since the outbreak of the European war it has been practically impossible to obtain new engines and rolling stock from Great Britain, and orders which were accepted prior to and shortly after the commencement of hostilities are either proceeding very slowly or have been postponed indefinitely, and there appears very little prospect of delivery being obtained of a large proportion of the engines and stock until after peace is proclaimed. In view of these difficulties and the necessity for meeting the requirements in new rolling stock orders for 38 large locomotives were placed in America, delivery of which was due about June, 1918. Everything possible, however, is being done to meet the requirements of traffic.

Italian Railroads Carried 1,500,000 Men a Month.

A review of the work accomplished by the railroads in Italy during the war, shows that during the period of mobilization about 90,000 cars were used monthly, and on the Venetian lines at times there were as many as 380 trains a day in use. In 39 months of warfare there were transported 27,000,000 men and 6,000,000 cars of merchandise for military use. In a record month there were transported 1,500,000 men and 220,000 cars of freight. These figures are exclusive of the regular train services which were maintained. On certain lines, by skilful operation, it was possible to move 150 trains a day, to receive as many as 400 trains a day in certain stations, and on the lines in the Venetian district at times there were 500 trains a day running.

The service done by the railroads in Italy is all the more remarkable, says the Italian News Bureau, when the serious handicap, because of the many men who left to join the mili-

tary forces, is considered. In all, 13,000 railroad employees left for military service; 507 of them have been killed in combat and 116 either are unaccounted for at sea or died in prison camps.

Motive Power Shortage of the Malay States

The report of the operations of the railways of the Federated Malay States for 1917, recently issued by the general secretary shows that that system is another of those which has suffered severely from a shortage of locomotives and repair parts during the year in question.

The total train mileage was 3,491,741, an increase of 65,809. The number of passengers carried was 12,037,941, a decrease of 2,703,125. Freight traffic increased by 26,373 tons, the total carried being 1,293,404 tons. Live stock increased by 22,382 head, the number carried being 144,809. The falling off in passenger traffic was due to the increase of fares, which had effect from March 1, 1917. Passenger traffic had been increasing to such an extent that the department was unable to cope with it. The number of trains could not be increased owing to the impossibility of obtaining more locomotives. Some of the engines ordered from England, which it is understood were completed to the extent of 80 per cent., could not be delivered, and attempts to secure them from foreign countries were unsuccessful. The engine difficulty was not entirely due to the shortage of engines. There was also a great difficulty in obtaining materials for repairs to locomotives. Freight traffic, however, was fully maintained by the restriction of passenger traffic.

During the year the railway system of the Federated Malay States was linked up with the Siamese system, so that it is now possible to make the journey overland from Penang or Singapore to Bangkok, the capital of Siam.

Railway Notes from China

Special Correspondence from Peking (delayed)

Considerable satisfaction is felt with the mandate appointing Hsuing Shi Ling, former premier and latterly special commissioner in charge of flood conservancy, as director-general of the Grand Canal reconstruction project. This is a joint undertaking of the American firm of Siems, Carey & Company with Japanese investors. Of the $12,000,000 loan some $500,000 was advanced several days ago, and the work of culling from the voluminous reports which have been accumulated on this subject during the past 200 years the essential data applicable to present conditions will be commenced shortly. Although the Grand Canal parallels the Tientsin Pukow line at places, it is believed that the improved canal will act as a feeder to the railroad rather than as a competitor. That is the direction which the traffic on other waterways is beginning to take.

* * *

On July 15 were held the closing ceremonies of the First General Traffic Conference of the Chinese Government railways. The conference had been in session for three weeks. It was composed of two members from each of the fifteen lines now in the government system, together with representatives from the ministry of communications. This conference was held in furtherance of the idea of unifying operating and traffic rules much after the same fashion as the accounting classifications had been unified. While each of the lines built with foreign capital originally represented interests essentially competitive, if not hostile to each of the others, there is a disposition now even on the part of the foreign influence represented on these lines to co-operate with the Chinese Government conservatively in the welding of the separate lines into an actual government system. While a great many subjects of interest more academic than practical took up considerable time at the conference, two important decisions were reached. One of these is for a bureau to be created in the ministry of communications for the supervision of inter-line traffic. The other is regarding a scheme which looks toward the ultimate pooling of rolling stock. In the effort to relieve in part the present car shortage the ministry proposed to poll all of the present stock. This aroused strong opposition from the lines with relatively adequate supplies of cars. Since inter-line business at present comprises well under 10 per cent of the total business, these lines were able to make out a very persuasive case against the loss of their equipment to lines which had not been so forehanded. Hence the compromise was hit upon of permitting the ministry to purchase future orders as far as it might wish and be able to do so, these new cars to be held in a central pool and be used by the individual lines for through business and locally, as deemed expedient. The rental to be paid the ministry and the regulations for interchange, inspection and repair are yet to be formulated. Acting upon this plan, the present mortgage securities remain untouched, the control of each individual management over cars in strictly local service remains unimpaired, but with the increase of business the ministry is in a position to assume control of this important function which bears so heavily on the subject of regaining Chinese control over enterprises within what have been looked upon as foreign spheres of influence.

The Damage to Belgian Railways

A special correspondent of the Times (London) gave recently some interesting details of the damage done by the Germans to the Belgian railways. He also said, however, that things were so far restored when he wrote that three trains were running daily each way between Ostend and Bruges.

"The most extraordinary triumph, however, of Belgian grit and the resourceful skill of the army railway engineers," he said, "is the establishment of a single-track connection with Bruges and Brussels via Eecloo, Ghent, Termonde and Malines. Throughout the greater part of this route, especially the Eecloo-Termonde section, the permanent way, sidings, culverts, bridges, signals, station buildings, and other railway works have been wrecked out of all recognition by the retreating Germans. A clue to the method by which this devastation was wrought may be seen in the large unexploded land mines lying singly or in pairs in the ditches and hedges every 50 or 100 yards along the easternmost sections of the track. Some are rusty and mud-covered; others still preserve their grey war paint, with green and black lettering. As these lie most thickly just before Termonde, many were probably dug up again by the Germans themselves after the conclusion of the armistice.

"But from Eecloo through Ghent, especially the important suburbs of Ghentbrugge and Ledeberg, to Schellebelle, where the lines to Termonde and Alost diverge, the mines have done their work with an effective, in many cases with a malevolent destructiveness which is hard to parallel anywhere in the war area. The whole permanent way is rent and pitted, the rails are broken and splintered like rotten wood, or twisted like wire into every imaginable contortion, in some places sticking upright, in others sprawling apart, and in others again flung into the adjoining fields. The tall iron lattice-work signal masts have fallen on the tracks all bent and broken, and the equally tall iron electric light standards have also been brought down everywhere, while for long sections the double telegraph poles have been felled with some instrument of precision. The whole track is littered with shattered fishplates, tieplates, nuts, bolts, screws, insulators, and seemingly inextricable festoons of wire. Signal-boxes, engine-houses and goods depots are either reduced to heaps of powdered brick or mere sieves. The bridges over the Scheldt and other rivers and canals for the most part lie in broken sections in the water, whence they emerge endwise, while the overhead road bridges have subsided bodily across the track, and in some cases the macadam roadway dips down at an angle of about 45 deg.

"Through this pathless waste, working day and night, the Belgian Engineers have carried their single track to Bruges and Brussels. . . . The success of this plucky experiment, coupled with the equally successful reopening of the connection with Paris, deserves every commendation. It is satisfactory to learn that German prisoners are being sent to the Yser district to work on the railway, and it is hoped that their labor will be largely employed wherever else the German genius for destruction has been active. In view of the well-known German propensities, the strictest inquiry should be made into the plea of 'military necessity' behind which German destruction of the Belgian railways is cloaked."

Equipment and Supplies

In the *Railway Age* of December 27, page 1175, there was a statement to the effect that part of the firedoors for the latest order for 600 locomotives for the Railroad Administration would be ordered from the National Railway Devices Company. More recent advices are to the effect that all of the firedoors for this order will be obtained from that company instead of only a part. The National Railway Devices Company also furnished a part of the firedoors for the U. S. standard heavy Mikado type locomotives ordered by the government in its first orders of 1,430 standard locomotives. This will correct the table showing the list of Specialties for Standard Cars and Locomotives in the Annual Statistical Number of the *Railway Age*, page 91.

Locomotive Deliveries

The following locomotives were shipped to railroads under federal control during the week ending January 11:

Works	Road	Number	Type
American	*Oregon Short Line	10	USRA Mikado
	Belt Ry. of Chicago	5	USRA Santa Fe
	Seaboard Air Line	2	USRA 6-w. Sw.
	Union Pacific	4	USRA 6-w. Sw.
	Boston & Albany	5	USRA Santa Fe
	Chicago & N. W.	3	Mikado
	Mobile & Ohio	2	USRA 6-w. Sw.
	Total	31	
Lima	New York Central	3	USRA Mikado
Baldwin	Great Northern	2	Mikado
	A. T. & S. F.	1	Mikado
	Baltimore & Ohio	4	USRA Mikado
	Atlantic Coast Line	1	Mikado
	Philadelphia & R.	1	Mallet
	Philadelphia & R.	1	Consol.
	Lehigh Valley	1	Pacific
	Total	11	
	Grand total	45	

*Five U. S. R. A. Mikados, constructed for the Oregon Short Line, were shipped to Cleveland, Ohio, to be stored as part of an emergency pool.

Freight Cars

THE AMERICAN RAILWAY EQUIPMENT COMPANY, Pittsburgh, Pa., is inquiring for 25 steel 50-ton gondola cars.

THE NATIONAL ANILINE & CHEMICAL COMPANY, INC., Marcus Hook, Pa., is inquiring for one 50-ton hopper car and for one 40-ton gondola car.

RURAL RAILWAYS PLANNED FOR ENGLAND.—The Ministry of Reconstruction, according to the London Daily Mail, is embarking upon a great scheme of rural development by the construction of a large number of light railways to connect the country districts with the main railways. The cost will be borne in part by the county authorities and in part by the government. Upon completion the lines will be leased to the operating companies under adequate guarantees. Enormous quantities of material used by the British army in France will be utilized, reducing the cost of construction to about $12,000 a mile. The first rural railway has been begun at Giggleswick, Yorkshire.

PARIS-PIRAEUS TRAIN SERVICE.—Plans are taking shape for the inauguration in May, 1919, of a through train from Paris to Athens, and on to Piraeus, the port of Athens, about seven miles away. This train will leave Paris at noon on Saturdays and will proceed via Milan, Venice, Trieste, Agram, Belgrade, Nish, Skopia, Platy, and Larissa, arriving in Athens Tuesday morning. It will carry Anglo-Indian and other far eastern mails and passengers, and will in this way vastly increase the importance of the port of Piraeus, which in future will be the starting place of steamers for the Far East, in place of Brindisi and other Italian ports. It will be difficult to overestimate the salutary political and commercial results of this train, which will from one viewpoint have the effect of bringing Greece hundreds of miles nearer Western Europe in distance and several days nearer in time.—*Commerce Reports.*

Supply Trade News

The Aspromet Company, Pittsburgh, Pa., announces the opening of a sales office in the Schmulbach building, Wheeling, W. Va. The new office is under the direction of **E. A. Short.**

Harry F. Worden, sales manager of the Bryant Zinc Company, with headquarters at Chicago, died in that city on January 14, after a short illness brought on by an attack of acute indigestion.

E. Logan Hill, secretary of the United States Shipping Board Commission on Port and Harbor Facilities, has resigned and become associated with Heyl & Patterson, Incorporated, contracting engineers, Pittsburgh, Pa. Previous to his appointment as an officer of the Shipping Board, Mr. Hill was assistant general manager of the Erie Railroad. He will be located at the Heyl & Patterson, Incorporated, New York sales office, 90 West street, which is particularly interested in the application of the company's cranes to wharves, cargo handling and other special purposes.

Ten million dollars' worth of equipment owned by the United States Spruce Production Corporation, with headquarters in Portland, Ore., is to be sold, and sealed bids for it will be received up to and including February 15. The equipment, which consists of everything from picks and shovels to complete railroads and mills, is in excellent condition and much of it was never used because of the abrupt ending of the war. The equipment has been stored at Vancouver, Wash., where it may be inspected on application to the Sales Board, which has its offices in the Yeon Building, Portland, Ore.

E. D. Jackson, formerly assistant to the chief engineer of the Baltimore and Ohio, has been appointed general manager of the Chipman Chemical Engineering Company, Inc., New York. Mr. Jackson entered the service of the Baltimore and Ohio in January, 1903, as a rodman on the Pittsburgh division and remained in the employ of that company until December 15, 1918, when he resigned to accept his new position. Mr. Jackson was born in Front Royal, Va., July 1, 1882, and was educated in the public schools of that town and at the Virginia Military Institute at Lexington, Va., from which he graduated in the course of civil engineering in 1902. With the Baltimore & Ohio he filled the various positions on the engineering corps to that of assistant division engineer while at Pittsburgh, from which he was transferred to Baltimore to the office of the assistant engineer. In 1909 he was appointed division engineer of the Chicago division, with headquarters at Garrett, Ind., remaining there until early in 1910, when he was again transferred to Baltimore in the capacity of assistant engineer in the office of the general manager, having charge of the development of the standard track work system. In 1913 he was transferred to the Philadelphia division as division engineer, and in 1914 returned to Baltimore as assistant to the engineer maintenance of way and later as assistant to the general superintendent of maintenance of way and structures.

E. D. Jackson

Automatic Straight Air Brake Company

Automatic straight air brake equipment, developed by the Automatic Straight Air Brake Company, New York, is now being manufactured by the American Car & Foundry Company, for both passenger and freight cars. It is reported that within 60 days the installation of these brakes will begin on freight and passenger cars in regular service.

In the annual report of the Bureau of Safety of the Interstate Commerce Commission, the following reference is made to the Bureau's tests of the A. S. A. equipment, a part of which were described in the *Railway Age* of July 26, 1918, page 173:

"The automatic straight air-brake system mentioned in last year's report, which was submitted by the Automatic Straight Air Brake Company, New York, N. Y., has been subjected to thorough tests during the year. The brake apparatus was first installed on a 100-car test rack in New York City and an elaborate series of tests was made. These tests demonstrated that the apparatus was sufficiently developed to warrant its trial under service conditions on a road having heavy traffic and mountain grades, and after the rack tests had been completed the brake apparatus was installed on 100 steel hopper cars on the Virginian Railway. These cars were loaded with coal. Standing and running tests were made with trains of 50 cars and 100 cars each, various arrangements of cars equipped with the present types of brakes and the new brake apparatus being used in these trains.

"The purpose of these tests was twofold; namely, to determine whether the automatic straight air-brake apparatus would operate synchronously with brake apparatus in common use and to determine whether the new brake could be depended upon properly to control long trains on heavy grades as well as in general service. In these tests synchronous action with brake apparatus now in common use was obtained under a number of varied conditions and circumstances, and the flexibility of the system in controlling long trains, as well as smooth operation and the absence of severe shocks, were amply demonstrated. Many of the intended functions of the brake were substantially accomplished. The more important of these are (1) providing uniform brake cylinder pressure, irrespective of piston travel; (2) compensating for brake cylinder and brake pipe leaks; (3) greater availability of the emergency feature; (4) a graduated release feature, permitting flexibility of control; and (5) prompt serial action both upon application and in release."

Trade Publications

SMALL TOOLS.—Catalogue No. 40, listing taps, dies, screw plates and reamers manufactured by the Greenfield Tap & Die Corporation, Greenfield, Mass., has been issued by this company. It contains 288 pages in which sizes, prices, dimensions and illustrations are given in convenient form.

STEAM MINE HOISTS.—The Lidgerwood Manufacturing Company, New York, has issued Bulletin No. 19 containing 32 pages descriptive of the line of steam mine hoists manufactured by that company. Two pages are devoted to general specifications and all of the others to illustrations, descriptions and tables of sizes, weights and dimensions of individual types of this equipment.

TOOL STEELS.—The Carnegie Steel Company, Pittsburgh, Pa., is now offering to the trade a new line of carbon tool steels made in five grades containing different proportions of carbon, which are intended for utilization in the manufacture of tools where heretofore alloy steels have been used. A catalogue has been issued describing these steels and presenting practical information for the steel user without going into an extended discussion of the theories of heat treatment. It contains a chart in colors of heat and temper colors which is a direct reproduction by color photography from test pieces heat treated to the temperatures shown. It affords a direct comparison by the blacksmith in the shop whereby it is possible to eliminate the effect of different lighting conditions. Pages devoted to reproduction of labels of the fine grades also specify the various uses for each grade of steel and facilitate the selection of the proper grade for any particular use.

Financial and Construction

Railway Financial News

ALABAMA GREAT SOUTHERN.—A dividend of 4 per cent has been declared on the preferred stock, payable February 21 to holders of record January 21, and also a dividend of 4 per cent on the common stock, payable January 31 to holders of record January 20. The previous declaration was 3 per cent on both classes of stock on June 14 last year.

BOSTON & MAINE.—The stockholders have voted by a large majority in favor of the reorganization plan previously endorsed by the company directors and by Director General McAdoo.

BROOKLYN RAPID TRANSIT.—Judge Julius M. Mayer, of the United States District Court, has formally appointed former Secretary of War, Lindley M. Garrison, permanent receiver of this company.

NEW YORK CENTRAL.—At the annual meeting of the stockholders, the following directors were elected: William K. Vanderbilt, Chauncey M. Depew, Frederick W. Vanderbilt, George F. Baker, William Rockefeller, William K. Vanderbilt, Jr., Harold S. Vanderbilt, Ogden Mills, Edward S. Harkness, Charles B. Seger, Samuel Mather, and Frank J. Jerome.

PENNSYLVANIA.—The New Jersey Public Utilities Commission has approved the application of this company to issue its general mortgage bonds to the amount of $50,000,000.

TOLEDO, ST. LOUIS & WESTERN.—The January 1 interest payment on an issue of $9,575,000 prior lien 3½ per cent bonds of this company due in 1925, has not yet been paid, apparently because the receiver's controversy with the Railroad Administration over the allocation of freight cars on the company's lines had not yet been settled. In a communication sent to the holders of the bonds the Farmers' Loan and Trust Company, as trustee of the mortgage, says that the receiver, finding himself without funds at the date of maturity of the interest, sought to raise the necessary funds through an issue of receiver's certificates. This step was vigorously opposed by the trust company, which in its circular said: "The result of the whole complicated situation was that the court authorized the receiver to endeavor to settle his controversy with the government by accepting a very much smaller number of cars, and pending the negotiation in that direction the court adjourned the receiver's application for receiver's certificates. We are expecting any day to hear from the receiver that he has settled his controversy with the government, as he was very hopeful about it, and in case the controversy is settled he is also hopeful of obtaining necessary financial assistance from the government pending the negotiation of a just compensation contract to cure this default in interest and to finance the receivership in the immediate future."

Railway Construction

CENTRAL OF GEORGIA.—This road has authorized the construction of a rectangular timber engine house and four concrete cinder pits at Birmingham, Ala. The building will be constructed to house four large Mallet locomotives. The work will be done by Illinois Central forces.

ILLINOIS CENTRAL.—This road has awarded a contract to the William Graver Tank Works, Chicago, for filtering and sterilizing equipment for a filtration plant to be constructed at Baton Rouge, La. The contract for the construction of the building has not yet been let and possibly this work will be done by the railroad's own forces. (December 20, 1918, page 1139.)

SOUTHERN PACIFIC.—This road has been authorized to construct shop buildings at Sacramento, Cal., to cost about $79,500. The largest structure to be erected will be a steel foundry which will cost $45,000. A steel and concrete repair shop will be constructed at a cost of $29,900. The projected work also includes a parcel post building to cost $4,600.

Railway Officers

Railroad Administration

Regional

H. N. Rodenbaugh, staff officer, engineering, in the office of the Southern regional director, has been appointed engineering assistant to the regional director, with office at Atlanta, Ga.

T. W. Proctor, whose appointment as supervisor of merchandise service in the Northwestern region, with headquarters at Chicago, was announced in the *Railway Age* of January 10, was born in London, Eng., in 1870. He attended Ardingly College, England, the University of Brussels, Belgium, and the Hanson School, Brussels. He entered railway service as a bill clerk in 1884. Later he was employed by the Burlington, Cedar Rapids & Northern, now a part of the Chicago, Rock Island & Pacific, as bill clerk at Cedar Rapids, Iowa. Subsequently he became chief clerk, yard switchman and rate clerk. In 1901, he went with the Chicago, Milwaukee & St. Paul, with which road he has held the following positions: Clerk and traveling claim agent in the freight claim department; soliciting freight agent in the traffic department at Minneapolis, Minn.; traveling freight agent at Kansas City, Mo.; assistant general agent at Chicago; general agent at Chicago; assistant general freight agent at Minneapolis, and assistant general freight agent at Chicago. The latter position he held at the time of his appointment as supervisor of merchandise service in the Northwestern region.

Central

Joseph H. Young, formerly president of the Norfolk Southern and later federal manager of the Virginian and the Norfolk Southern, has been appointed senior assistant director of the Division of Operation, succeeding **W. T. Tyler,** who has been appointed director of the division, following the resignation of **Carl R. Gray.** Mr. Young was born on January 17, 1864, at Salt Lake City, Utah, and was educated at the University of Utah. He began railway work in 1882 with the Utah Central as office boy and warehouseman, and after having been agent, operator, bill clerk, ticket clerk, train agent, traveling passenger agent and general agent on various roads, was appointed general superintendent of the Utah Central in 1889. He was later superintendent of the Utah division of the Oregon Short Line, in 1902 general superintendent of the Rio Grande Western, in 1904 general superintendent, and later general manager of the Colorado & Southern, at Denver. On May 1, 1907, he became general superintendent of the St. Louis & San Francisco, was later general superintendent of the Southern Pacific, president of the Alaska Steamship Company and vice-president of the Copper River & Northwestern. In 1912 he was elected president of the Spokane, Portland & Seattle and other Hill lines in the northwest and later became president of the Norfolk Southern, from which position he was appointed federal manager of the Virginian and the Norfolk Southern.

J. H. Young

Federal and General Managers

A. W. Thompson, federal manager of the Baltimore & Ohio eastern lines and formerly vice-president of the Baltimore & Ohio Company, has resigned, effective on February 1, and is leaving the railroad service to become president of the Philadelphia Company, which operates a large number of public utility companies in Pennsylvania, including natural and artificial gas, electric light and power, and street and interurban railway companies, having a property investment of nearly $150,000,000.

A. W. Thompson

Mr. Thompson was born on May 8, 1875, at Erie, Pa., and graduated from Allegheny College in 1897 with the degree of civil engineer. He had spent portions of each year during his college training in a drafting room of the Erie Railroad and on location work for the Pittsburgh, Bessemer & Lake Erie as rodman. From June, 1897, to February, 1898, he worked as a draftsman, and in 1898 entered the service of the Pittsburgh & Lake Erie as a transitman on location and construction. He became connected with the Baltimore & Ohio in 1899 as chief of party on surveys and was later assistant division engineer, division engineer, division superintendent and chief engineer maintenance of way, of the same road. In 1910 he became chief engineer of the Baltimore & Ohio and Baltimore & Ohio Southwestern, and later in the same year he was appointed general manager. In 1912 he was elected third vice-president in charge of operation. Later, although his experience had been in the engineering and operating departments, he was elected to the new office of vice-president in charge of traffic and commercial development. On January 1, 1918, his jurisdiction was extended over the operating and engineering department, and in May he was appointed federal manager of the Baltimore & Ohio eastern lines having charge of the operation of the property for the United States Railroad Administration during the time when the Baltimore & Ohio was called upon to handle a very large share of the heavy traffic in war materials and supplies, including the traffic originating in the Pittsburgh district, in a section of the country where the volume of war traffic was the greatest and the difficulties of operation correspondingly increased. Mr. Thompson has also taken a prominent part in the affairs of the American Railway Engineering Association and of the American Railway Association, of which he was first vice-president and later acting president.

Mr. Thompson is leaving the railroad field in which he had demonstrated such marked ability to take up a new line of work which presents large possibilities. The Philadelphia Company operates under a very broad charter which enables it to engage in a varied line of activities. The electric division furnishes light and power for practically all of the city of Pittsburgh and its suburbs having 4,000 miles of high tension power lines covering a radius of 50 miles. One of its subsidiaries owns one of the largest power plants in the United States. The natural and artificial gas properties include 3,500 miles of pipe lines and distribute in the Pittsburgh district 48,000,000,000 cubic feet of gas per year. The traction and interurban division operates over 800 miles of traction lines in Pittsburgh and vicinity.

Effective January 11, the jurisdiction of the following Texas & Pacific officers is extended over the Gulf, Texas & Western: **Phil Carroll,** general manager; **J. B. Payne,** traffic manager; **George Thompson,** general solicitor; **A. J. Biard,** federal auditor; **E. F. Mitchell,** chief engineer; **R. L. Irwin,**

purchasing agent, and **W. L. Holder,** land and tax commissioner; headquarters at Dallas, Texas.

R. N. Begien, assistant to Federal manager of the Baltimore & Ohio Eastern lines, with headquarters at Baltimore, Md., has been appointed Federal manager of the Baltimore & Ohio Western lines, with headquarters at Cincinnati, Ohio, succeeding Charles W. Galloway. Mr. Begien was born on March 15, 1875, at Boston, Mass., and was educated in the engineering department of Harvard University. For three years he served as a member of the Nicaraguan Canal Commission in Central America, following which he went to Ecuador, South America, where he spent a year in railway engineering work. Then he returned to the United States to enter the engineering department of the District of Columbia. Mr. Begien began his career with the Baltimore & Ohio on August 1, 1902, as an assistant engineer at Somerset, Pa., and in June, 1908, he became division engineer at Philadelphia. He was promoted to assistant to chief engineer of the Baltimore & Ohio under A. W. Thompson on May 1, 1910, and when Mr. Thompson became general manager Mr. Begien continued as his assistant, becoming assistant to the third vice-president on May 1, 1912. In December of the same year he was promoted to assistant general superintendent, with headquarters at Baltimore, and in July, 1913, was appointed general superintendent of the Baltimore & Ohio Southwestern. In July, 1916, he was appointed chief engineer of the Baltimore & Ohio system, with headquarters at Baltimore. On April 1, the following year, he was appointed general manager of the Eastern lines, and in July, 1918, he became assistant to Federal manager (operating) of the Baltimore & Ohio Eastern lines and New York Terminals, the Western Maryland, the Cumberland Valley, the Cumberland & Pennsylvania and the Coal & Coke, with headquarters at Baltimore, which position he held at the time of his appointment as mentioned above.

R. N. Begien

Charles W. Galloway, federal manager of the Baltimore & Ohio, western lines, with office at Cincinnati, Ohio, has been appointed federal manager of the B. & O., eastern lines and associated lines, with headquarters at Baltimore, Md., to succeed A. W. Thompson, resigned. Mr. Galloway was born on December 11, 1868, and began railway work in 1883, as a messenger in the telegraph department of the Baltimore & Ohio. He subsequently served as clerk, stenographer, and secretary to different officers on that road, and from September, 1897, to July, 1899, as trainmaster on the Baltimore division. He was then consecutively assistant superintendent, superintendent of the Cumberland division, superintendent of the Baltimore division, and superintendent of transportation. He served as general superintendent of transportation of the Baltimore & Ohio and the Baltimore & Ohio Southwestern at Baltimore from July to September, 1910, and then was transferred to Cincinnati, Ohio, as general superintendent of the Baltimore & Ohio Southwestern. From April, 1912, to July, 1916, he was general manager of the Baltimore & Ohio, with headquarters at Baltimore, and then was elected vice-president of the Baltimore & Ohio Southwestern, general manager of the Western lines of the Baltimore & Ohio system, and general manager for the receivers of the Cincinnati, Hamilton & Dayton. He subsequently was appointed federal manager of the Baltimore & Ohio, western lines, and now becomes federal manager of the B. & O. eastern lines. The associated lines are the Cumberland Valley, the Western Maryland, the Coal & Coke, the Cumberland & Pennsylvania, the Wheeling Terminal, the Gettysburg & Harrisburg, and the Philadelphia & Reading, between Shippensburg, Pa., and Harrisburg, Pa.

C. W. Galloway

Operating

R. A. Mason has been appointed terminal trainmaster of the Baltimore & Ohio, Western Lines, with office at New Castle Junction, Pa., vice **L. M. Bowser,** resigned.

B. M. Edwards has resigned as manager of the Bennettsville & Cheraw and the office of manager has been abolished. **C. G. Rogers** has been appointed superintendent, with office at Bennettsville, S. C.

Charles Wesley Shaw, whose promotion to superintendent of the Springfield division on the Illinois Central, with headquarters at Clinton, Ill., was announced in the *Railway Age* of January 10, was born on April 12, 1868. He began his railway career on February 3, 1886, as a brakeman on the St. Louis Southwestern. The following year he entered the service of the Illinois Central as a switchman at Cairo, Ill., and subsequently served as yardmaster at Mounds, Ill., and freight conductor on the Chicago division. On April 15, 1894, he was transferred to the bridge and building department at Cairo, where he remained until April 1, 1900, when he became a brakeman on the St. Louis division. In the fall of that year he was promoted to freight conductor on the same division. Four years later he was appointed assistant trainmaster, and on April 10, 1907, became acting trainmaster on the Champaign division. In August of the same year he was promoted to trainmaster on the St. Louis division, and on July 15, 1911, he resigned to become trainmaster on the Illinois Southern. The following year he returned to his former position as trainmaster on the St. Louis division of the Illinois Central, which position he held until January 1, 1919, when he was appointed superintendent of the Springfield division at Clinton, Ill.

C. W. Shaw

W. D. Pearce, supervisor of bridges and buildings of the Yellowstone division of the Northern Pacific, at Glendive, Mont., has been appointed trainmaster, with office at Forsyth, succeeding **T. J. Regan,** transferred in the same capacity to Dickinson, N. Dak., vice **John Wynn,** promoted.

H. A. Culp, trainmaster of the Southern Pacific lines south of Ashland, with headquarters at Yuma, Ariz., has been appointed assistant superintendent of the Shasta division, with office at Dunsmuir, Cal., vice **W. B. Kirkland,** resigned, and **W. T. Small** succeeds Mr. Culp as trainmaster of the Tucson division, with office at Yuma.

C. A. Plumly has been appointed superintendent of telegraph of the Baltimore & Ohio, Eastern Lines; the Coal and Coke; the Wheeling Terminal Railroad; the Western Maryland; the Cumberland Valley and the Cumberland &

Pennsylvania, with headquarters at Baltimore, Md., vice **Charles Selden,** retired. Mr. Selden will still retain the duties and title of general inspector of transportation.

Financial, Legal and Accounting

Edward Beecroft has been appointed assistant federal treasurer of the Elgin, Joliet & Eastern, with headquarters at Chicago, Ill.

E. Marvin Underwood, general solicitor of the Seaboard Air Line and Macon, Dublin & Savannah, has been appointed general solicitor also of the Georgia, Florida & Alabama, with office at Norfolk, Va.

C. S. Stebbins, assistant to auditor of the Union Pacific, with headquarters at Omaha, Neb., has retired from railroad service after having spent 42 years with that road, which he joined in 1870, as secretary to the chief engineer and general superintendent. With the exception of a few years following 1887, Mr. Stebbins was employed continuously by the Union Pacific in various capacities in the passenger and accounting departments. In 1911 he was made assistant to the auditor of that road, which position he held until his recent retirement at the age of 70 years.

Traffic

P. W. Talbot has been appointed acting division freight and passenger agent of the Midland Valley Railroad, with headquarters at Muskogee, Okla., vice **Eugene Mock,** who has been temporarily assigned to serve with the St. Louis District Freight Traffic Committee.

Purchasing

Charles W. Yeamans, who was appointed purchasing agent of the Chicago & Western Indiana and the Belt Railroad of Chicago, with headquarters at Chicago, as announced in the *Railway Age,* of January 10, was born at Akron, Colo., on August 12, 1886. He began railway work on May 1, 1905, as a clerk in the engineering department of the Chicago, Burlington & Quincy, with headquarters at Chicago. Two years later he was promoted to chief clerk to the engineer of track elevation. On May 1, 1910, he resigned to go with the Chicago & Western Indiana in charge of the field construction office, with headquarters at Chicago. During the construction of Clearing yard between 1913 and 1915 he was material agent, having full charge of the ordering of materials; their inspection and distribution. Later he became chief clerk in the engineering department, and on May 1, 1918, was appointed assistant engineer in the construction department, which position he held until December 1, when he received his appointment as purchasing agent as mentioned above.

C. W. Yeamans

G. W. Alexander, whose appointment as general storekeeper of the Central of Georgia, with headquarters at Macon, Ga., has already been announced in these columns, was born on February 21, 1886, at Senoia, Ga., and was educated in the high schools. He began railway work in 1905, as a receiving clerk in the freight agent's office of the Central of Georgia, at Atlanta. In 1907 he was appointed ticket agent at Bremen, and then to 1909 was mechanical clerk to the general foreman at Cedartown. From 1909 to 1912 he held different clerical positions in the division storekeeper's office at Macon, and later was appointed division storekeeper at Cedartown. He subsequently served as division storekeeper at Savannah, and from 1914 to April, 1918, as division storekeeper at Macon, in charge of Macon, Southwest and Chattanooga divisions on the same road. In April, 1918, he became assistant to the Southern Regional Purchasing Committee of the United States Railroad Administration, with headquarters at Atlanta, Ga., and now returns to the Central of Georgia as general storekeeper as above noted.

Corporate

Traffic

George H. Shaw, having resigned as general traffic manager of the Canadian Northern Railway System and **D. A. Story** having retired as freight traffic manager of the Canadian Government Railways; **George Stephen,** freight traffic manager of the Canadian Northern, at Winnipeg, Man., has been appointed freight traffic manager, with office at Toronto, Ont., of the Canadian National Railways, under which name all of the above roads are now being operated. The following appointments have been made on the Canadian National Railways:—**H. H. Melanson,** passenger traffic manager of the Canadian Government Railways at Moncton, N. B., is now passenger traffic manager with jurisdiction over all lines, with office at Toronto; **A. T. Weldon,** general freight agent at Moncton, is now assistant freight traffic manager with jurisdiction over all lines from Matapedia, Que., and Edmundston, N. B., and east thereof, with office at Moncton, N. B.; **Guy Tombs,** assistant freight traffic manager at Montreal, is now assistant freight traffic manager with jurisdiction over all lines west of Matapedia and Edmundston, to but not including Port Arthur and Armstrong, Ont., with headquarters at Montreal; **W. G. Manders,** general freight agent at Winnipeg, Man., is now assistant freight traffic manager, and **S. Osborne Scott,** assistant general passenger agent at Winnipeg, is now general passenger agent, both with jurisdiction over lines Port Arthur, Armstrong, Ont., Duluth, Minn., and west thereof, and with offices at Winnipeg; **A. Brostedt,** district freight and passenger agent at Vancouver, B. C., has been appointed assistant general freight and passenger agent with jurisdiction Lucerne, B. C., and west, and office at Vancouver; **J. M. Horn,** assistant general freight agent at Winnipeg, has been appointed general freight agent, **J. M. Macrae** has been appointed assistant general freight agent, and **R. Creelman,** general passenger agent at Winnipeg, has been appointed assistant passenger traffic manager, all thru, with jurisdiction over lines Port Arthur, Armstrong, Duluth and west, with offices at Winnipeg, Man.; **R. L. Fairbairn,** general passenger agent, has been appointed general passenger agent, with jurisdiction over lines Quebec, and west to Port Arthur and Armstrong, with office at Toronto; **R. E. Perry,** assistant general freight agent at Moncton, has been appointed assistant general freight agent in charge of publication of tariffs and divisions for lines east of Fort William and Armstrong, with office at Montreal, and **W. Hately** has been appointed assistant general freight agent in charge of publication of tariffs and divisions for lines west of Port Arthur, Armstrong and Duluth, with headquarters at Winnipeg, Man.

Engineering and Rolling Stock

W. Walker, acting division engineer on the eastern lines of the Grand Trunk, with office at Montreal, Que., has been appointed division engineer, eastern lines, succeeding Major **F. L. C. Bond,** promoted.

Railway Officers in Government Service

C. V. Gallagher, formerly assistant general freight agent of the Minneapolis, St. Paul & Sault Ste. Marie at Chicago, who was given a leave of absence last spring to enter the transportation department of the Food Administration Grain Corporation, Chicago, has been promoted to assistant general traffic manager of the Grain Corporation.

Col. F. G. Robbins, assistant general manager, Service of Supply, of the Transportation Corps, A. E. F., with headquarters at Tours, France, has been transferred to the office of the chief of engineers of the army, with headquarters at Washington, D. C. Before entering military service, Col. Robbins was general superintendent of the Erie at Chicago.